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SHARK FISHERIES, TRADE, AND MARKET OF JAPAN

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SHARK FISHERIES, TRADE, AND MARKET OF JAPAN

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EXECUTIVE SUMMARY

Japan is a major market for sharks, utilizing an average of 26,000 metric tons (mt) of sharks during 1991-1997. Supply for this market comes from both domestic catches as well as imports.

The Japanese commercial fishery for sharks dates back to the Keicho Era (1596-1615). The catch increased rapidly from 27,000 mt in 1945 to record landings of 118,000 mt in 1949. Since 1949, however, shark catches have steadily declined, and the 1997 landings of 23,000 mt were only 19 percent of the record landings.

Japanese shark catches are primarily made as bycatch in other fisheries, but some directed fisheries for sharks also take place in waters off northeast Japan. Between 1991 and 1996, an average of 71 percent of shark landings was made by tuna longliners, and the rest by other longline fisheries, trawl, gillnet and other methods. Most Japanese catches of sharks occurred in the Pacific Ocean followed by the Atlantic and the Indian Oceans.

Japan is a major importer of sharks. In 1997, Japan's imports of sharks were worth about $18 million. The United States has become the leading supplier of fresh shark and fresh shark meat to Japan in recent years and, in 1997, the U.S. for the first time emerged as a significant supplier of frozen shark meat to Japan.

Japan regulates imports of shark products with import tariffs, which have been progressively reduced in GATT multilateral trade negotiation rounds. As the United States and Japan are signatories to the World Trade Organization (WTO), WTO tariffs apply to U.S. exports of shark products.

Sharks are sold through auctions at consumer wholesale markets located in consumption areas, and at production wholesale markets located at Japanese ports of landings. Sharks are also sold directly to processors and supermarket chains. The largest consumer fish wholesale market in Japan is the Tokyo Central Wholesale Market and the prices determined at the Tokyo Central Wholesale Market generally serve as a price index for fishery products throughout the world.

Wholesale prices of sharks vary widely, depending on quality, supply and demand, species, product forms, and other factors. Recently prices of fresh piked dogfish (or spiny dogfish, *Squalus acanthias)* at the Tokyo Central Wholesale Market have been higher than those for other sharks. Fresh blue shark (*Prionace glauca)* has commanded higher prices than fresh mako

sharks (*Isurus oxyrinchus* and *Isurus paucus*) and fresh salmon shark (*Lamna ditropis*). In 1997, wholesale prices of blue shark increased from 1996 levels by 8 percent for fresh and 4 percent for frozen products.

INTRODUCTION

The fishery for elasmobranchs (sharks, skates, and rays) is growing rapidly, and world elasmobranch production, which has doubled during the past four decades, is still growing in order to keep pace with the continuing rise in demand.

Japan has long been the world's largest harvester as well as consumer of elasmobranchs. Recently, however, the Japanese share of the world catch has decreased sharply. To fill the demand for sharks, Japan has increased shark imports from $600,000 worth of sharks in 1976 to $18 million in 1997.

Commercial landings of sharks by U.S. fishing vessels have undergone a marked increase from 23,000 mt in 1990 to 37,000 mt in 1996. A growing number of sharks caught incidentally in some fisheries are being landed for human consumption, but many are still being discarded at sea, with only their fins being kept.

This report provides detailed examination of the Japanese shark fishery, exports, imports, and market, in order to identify potential opportunities for export by U.S. producers.

WORLD FISHERY

Total world catches of elasmobranchs (sharks, skates, and rays), increased by 144 percent, from 310,000 metric tons (mt) in 1948 to 755,000 mt in 1995 (Fig. 1 and Table 1). Global increases in elasmobranch catches during recent years were due to increased catches by Indonesia, India, the United States, Pakistan, Malaysia, Brazil, and Republic of Korea (Table 2). Combined elasmobranch landings by these seven countries rose from 238,000 mt in 1990 to 318,000 mt in 1995, a 34 percent increase over this period. Of 94 nations that reported elasmobranch landings in 1995, Indonesia ranked highest with 13 percent (97,000 mt) of the total. India was a close second, with 86,000 mt. Japan, once the world's largest producer of elamobranchs, has been in fifth or sixth place since 1990. Japan's share of the world catch has decreased sharply, from 37 percent in 1949 to 4 percent in 1996 (Fig. 2).

Landings of elasmobranchs from the Pacific Ocean led other areas from 1990 through 1995, followed by the Atlantic Ocean (Table 3 and Fig. 3 and 4). Although the Indian Ocean was formerly not a major elasmobranch producing region, considerable growth in landings has occurred there in the past few years. Landings in this region (FAO fishing areas 51 and 57) increased from 146,000 mt in 1990 to 233,000 mt in 1995.

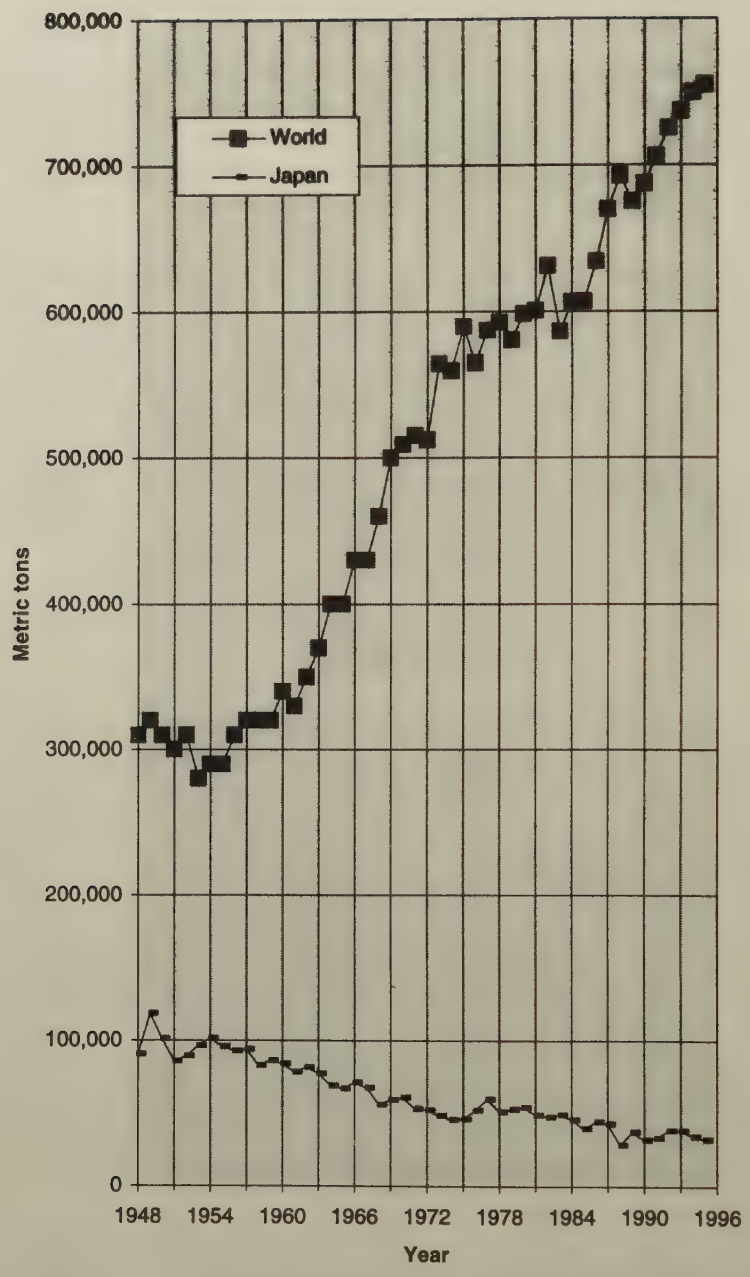

Figure 1. World and Japanese annual catches of elasmobranch (sharks, rays, and skates), 1948-1995 (metric tons). (Source: FAO 1964, 1969, 1974, 1978, 1983, 1987, 1997)

Table 1. Annual total world and Japanese catches of elasmobranch (sharks, rays, and skates), 1948-1995.

Year	World (metric tons)	Japan (metric tons)	Japan as % of world total (percent)
1948	310,000	90,397	29
1949	320,000	118,482	37
1950	310,000	101,067	33
1951	300,000	85,665	29
1952	310,000	89,100	29
1953	280,000	96,300	34
1954	290,000	101,500	35
1955	290,000	95,500	33
1956	310,000	92,600	30
1957	320,000	93,800	29
1958	320,000	82,900	26
1959	320,000	86,000	27
1960	340,000	83,900	25
1961	330,000	78,300	24
1962	350,000	81,500	23
1963	370,000	77,400	21
1964	400,000	69,000	17
1965	400,000	66,900	17
1966	430,000	71,100	17
1967	430,000	67,500	16
1968	460,000	56,000	12
1969	500,000	59,200	12
1970	509,000	60,800	12
1971	515,000	53,200	10
1972	512,000	52,200	10
1973	564,000	48,400	9
1974	559,213	45,715	8
1975	589,613	46,198	8
1976	564,852	51,995	9
1977	586,942	59,721	10
1978	592,487	51,181	9
1979	580,271	53,010	9
1980	598,246	54,298	9

Table 1 (continued). **Annual total world and Japanese catches of elasmobranch (sharks, rays, and skates), 1948-1995.**

Year	World (metric tons)	Japan	Japan as % of world total (percent)
1981	600,607	49,041	8
1982	631,123	47,580	8
1983	586,171	49,194	8
1984	606,534	45,682	8
1985	606,915	39,435	6
1986	634,251	44,394	7
1987	669,656	42,877	6
1988	692,736	28,616	4
1989	675,493	37,343	6
1990	687,354	32,103	5
1991	706,183	33,362	5
1992	725,314	38,467	5
1993	737,053	38,539	5
1994	749,592	34,318	5
1995	754,864	32,391	4

Source: FAO 1964, 1969, 1974, 1978, 1983, 1987, 1997

Table 2. World elasmobranch catches by major countries, 1990-1995 (metric tons).

Country	1990	1991	1992	1993	1994	1995
Indonesia	73,272	76,827	80,139	87,138	92,776	96,500
India	51,230	55,925	59,730	76,604	83,689	86,016
China, Taiwan	75,731	68,632	64,512	56,080	39,457	44,065
U.S.A.	34,576	35,510	54,093	38,074	37,789	37,554
Mexico	38,050	33,998	36,121	37,305	36,125	36,398
Japan	32,103	33,362	38,467	38,539	34,318	32,391
Pakistan	23,138	26,338	27,773	28,780	30,226	32,288
Malaysia	17,360	17,161	20,771	20,898	20,889	24,144
Brazil	22,900	23,410	23,010	22,950	23,010	23,820
France	25,002	23,945	20,859	23,198	22,277	20,948
Korea, Rep.	15,711	21,400	12,250	20,342	17,834	17,916
Others	278,281	289,675	287,589	287,145	311,202	302,824
Total	687,354	706,183	725,314	737,053	749,592	754,864

Source: FAO 1997

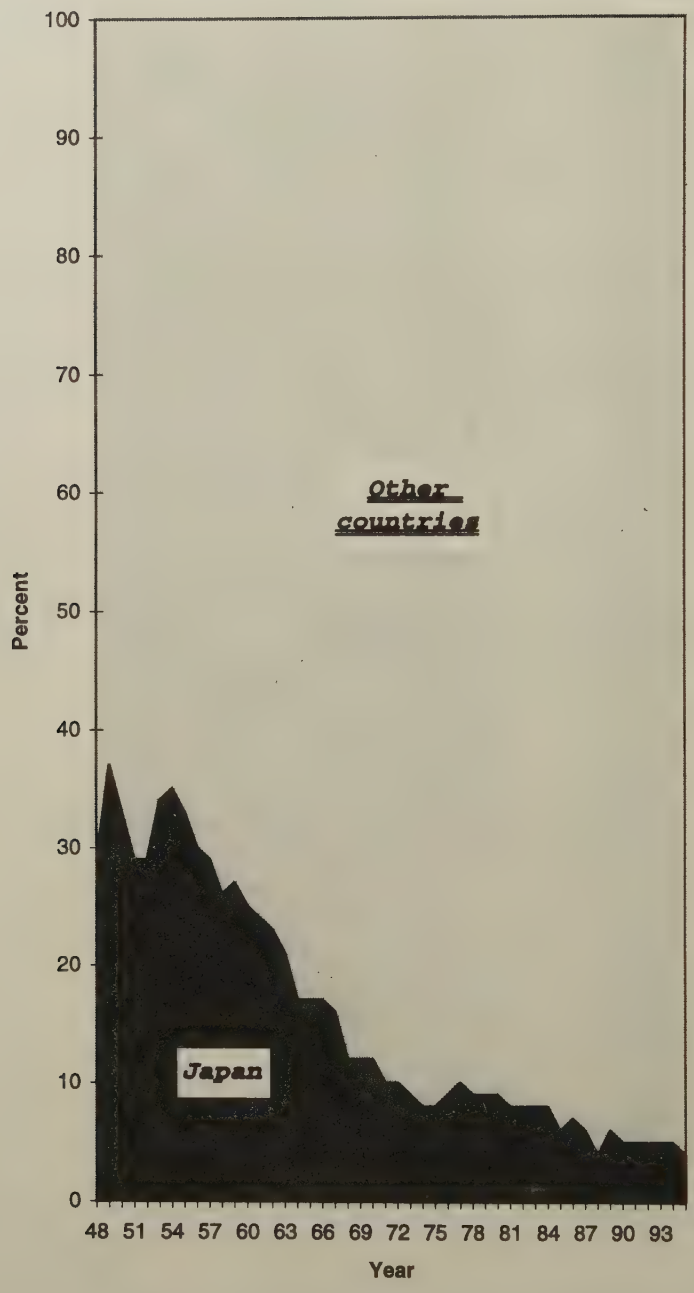

Figure 2. Japanese share of world elasmobranch catches, 1948-1995 (percent).
(Source: FAO 1964, 1969, 1974, 1978, 1983, 1987, 1997)

Table 3. World elasmobranch catches by major FAO fishing area, 1990-1995 (metric tons).

Area*	1990	1991	1992	1993	1994	1995
Pacific Ocean						
71	102,936	105,057	96,554	102,683	112,888	118,667
61	108,494	104,403	99,192	98,868	70,902	73,542
77	30,491	27,989	30,452	31,104	31,095	32,671
81	14,711	14,397	12,752	17,808	16,876	18,207
87	20,397	13,425	22,388	21,591	13,236	11,973
67	5,883	8,797	20,415	3,238	4,718	5,003
Sub-total	282,912	274,068	281,753	275,292	249,715	260,063
Atlantic Ocean						
27	80,154	79,872	84,456	76,416	71,313	73,281
41	45,827	51,439	48,587	48,276	55,044	60,615
21	52,500	62,918	44,424	44,212	45,879	46,912
31	29,742	26,680	29,809	27,218	33,910	29,417
34	26,015	22,593	27,287	26,309	31,087	28,182
47	7,033	3,437	4,031	5,442	4,506	3,986
48	0	0	1	-	-	20
Sub-total	241,271	246,939	238,594	227,873	241,739	242,413
Indian Ocean						
51	96,056	107,521	120,669	135,148	146,580	144,533
57	49,758	58,935	63,616	82,013	88,443	88,626
58	-	-	1	-	2	-
Sub-total	145,814	166,456	184,285	217,161	235,025	233,159
Mediterranean and Black Sea						
37	17,357	18,720	20,680	16,726	23,199	19,229
Total	687,354	706,183	725,314	737,053	749,592	754,864

* - Numbers refer to FAO fishing areas (See Figure 3)

Source: FAO 1997

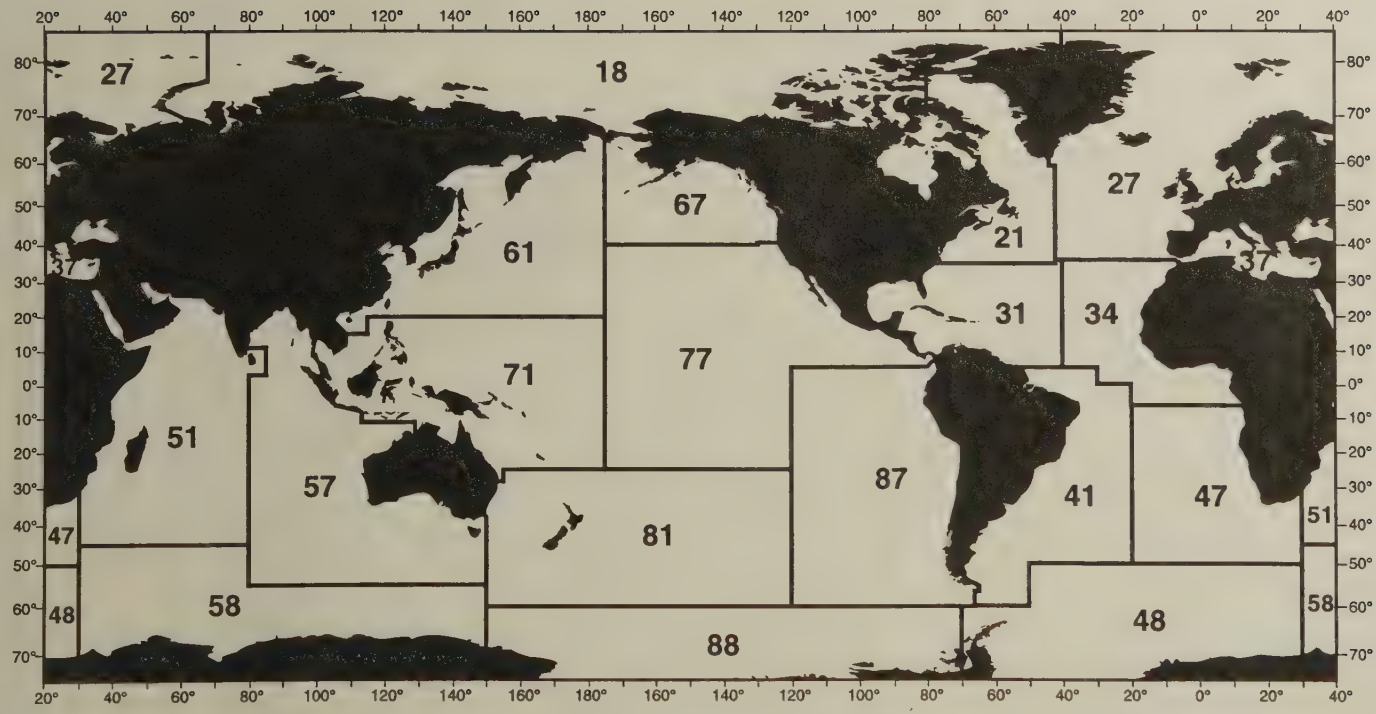

Figure 3. Major FAO statistical fishing areas.
(Source: FAO 1997)

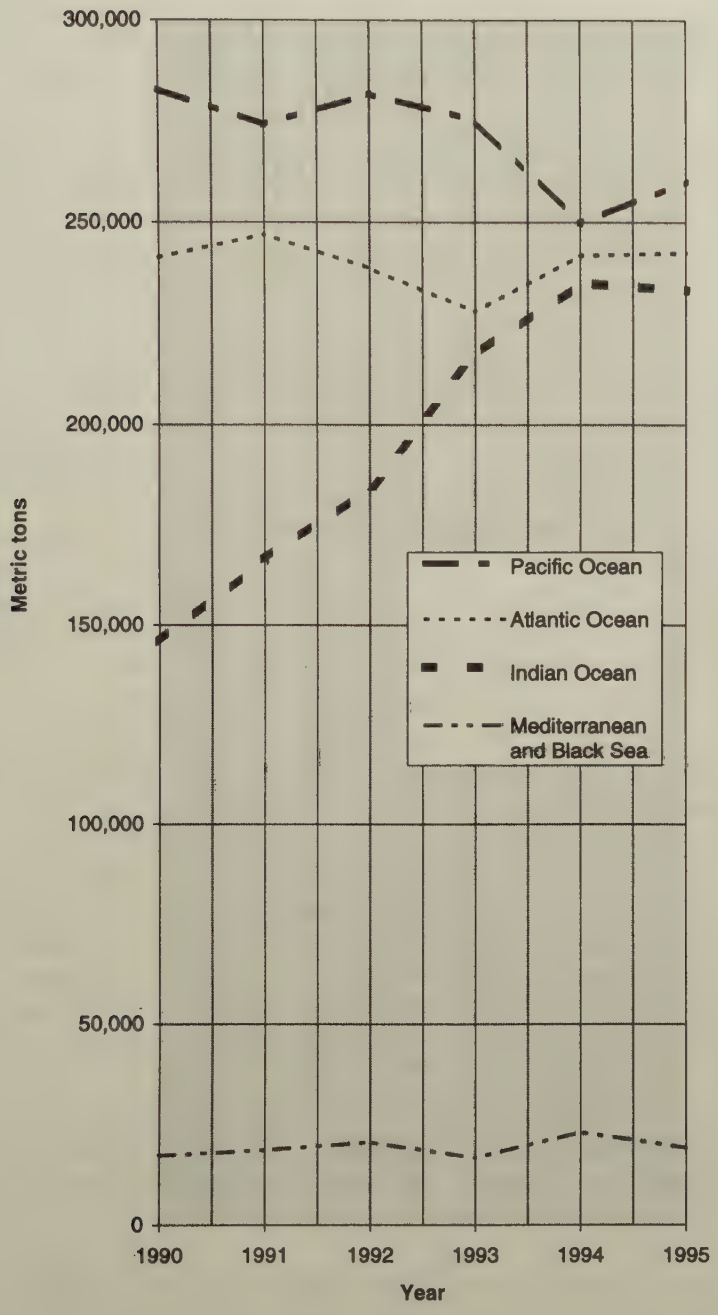

Figure 4. World elasmobranch catches by FAO fishing area, 1990-1995 (metric tons). (Source: FAO 1997)

JAPANESE FISHERY

History and Catch Trends

The Japanese commercial fishery for sharks dates back to the Keicho Era, 1596-1615 (Tarumoto 1984). Originally, sharks were caught in Japanese coastal waters by shark gillnets. In 1678, the Japanese developed a shark longline fishery. Early on, shark meat was dried for later consumption, the liver oils used in lanterns, and hides were used for accessories and as abrasives. In 1764, the Japanese started to export dried shark fins to China. The fishery began to target large sharks for this market and longline gear was modified to fish deep. In 1897, the Japanese government established the Distant Water Fisheries Promotion Act to develop and strengthen its distant-water fishing industry (Yaizu Fisheries Cooperatives 1964). The Act, as revised in 1905, provided grants for new vessel construction and installation of engines. In 1914, the first engine was installed in a shark longline vessel. By 1926, shark lonliners were equipped with line haulers, cold storage facilities, and radios. With these new technological developments, shark longliners could fish further away from Japan, and the distant-water shark fishery grew rapidly. Total landings of all shark species increased steadily from 5,675 mt in 1914 to 78,305 mt in 1936 (Table 4 and Fig. 5). In 1936, demand increased for shark liver oil with high vitamin-A content, and in 1939, under the military regime, the Japanese government encouraged increased production of leather, including shark hides, to manufacture military shoes. However, these gains in demand were more than offset by the loss of the Chinese shark fin market when the Sino-Japanese war started in 1937. Japanese shark catches thus decreased sharply from 78,000 mt in 1936 to 27,000 mt in 1945, the end of World War II. After the end of the War, Japan needed shark meat for human consumption as well as shark liver oil for vitamin A. At the same time, trade with China resumed. Consequently, shark catches increased rapidly from 27,000 mt in 1945 to record landings of 118,000 mt in 1949.

After 1949, however, the Japanese shark fishery faced many difficult challenges due mainly to the following developments (Tarumoto 1984):

1. Synthetic vitamin A became available in 1950. It was imported from the United States in 1950 and soon manufactured in Japan. Japan was one of the major suppliers of shark oil for vitamin A, but after 1955, production decreased as demand for the product dropped.

2. In the 1960's, synthetic leather became available in Japan. Shortly, demand for shark leather decreased sharply.

3. In the early 1960's, the technology for producing a stable frozen surimi (a refined form of minced fish meat) was developed successfully from Alaska pollock (*Theragra chalcogramma)*. Prices and demand for Pollock surimi increased while those for minced shark meat became sluggish.

4. From about 1965, exports of shark fins to China decreased sharply due to decreased demand.

5. Cost of production increased due to rising costs for fuel, gear, labor and bait, while prices for shark meat increased only slightly. This combination put downward pressure on vessel profits and fishermen's earnings. As a result, some shark fishing companies began to move in 1955 from sharks into other fisheries.

Since 1949, Japanese shark harvests have steadily declined, and the 1997 landings of 23,000 mt were only 19 percent of the record landings.

Table 4. Japanese landings of sharks, 1912-1997

Year	Landings (metric tons)	Year	Landings (metric tons)	Year	Landings (metric tons)
1912	11,018	1941	55,294	1970	50,564
1913	6,685	1942	65,173	1971	43,689
1914	5,675	1943	62,657	1972	42,669
1915	7,897	1944	60,366	1973	42,481
1916	11,523	1945	26,915	1974	39,941
1917	11,323	1946	52,011	1975	41,880
1918	9,492	1947	73,243	1976	43,652
1919	10,236	1948	86,092	1977	49,338
1920	17,177	1949	118,482	1978	41,784
1921	23,864	1950	101,313	1979	42,480
1922	21,761	1951	86,819	1980	42,286
1923	27,624	1952	90,141	1981	36,979
1924	33,149	1953	80,347	1982	34,984
1925	39,036	1954	84,558	1983	35,533
1926	56,014	1955	78,379	1984	35,380
1927	38,351	1956	74,562	1985	33,390
1928	48,860	1957	76,139	1986	35,139
1929	65,534	1958	66,177	1987	33,809
1930	63,647	1959	70,546	1988	32,128
1931	57,357	1960	69,658	1989	24,659
1932	57,294	1961	65,287	1990	21,979
1933	57,912	1962	69,136	1991	25,167
1934	58,202	1963	63,677	1992	27,589
1935	50,878	1964	56,779	1993	25,673
1936	78,305	1965	56,628	1994	23,537
1937	71,269	1966	60,359	1995	18,286
1938	65,304	1967	57,009	1996	19,393
1939	66,313	1968	56,029	1997	23,000
1940	59,425	1969	50,729		

Sources: Ministry of Agriculture, Forestry & Fisheries 1978, 1990, 1997
Suisan Tsushin Sha 1998

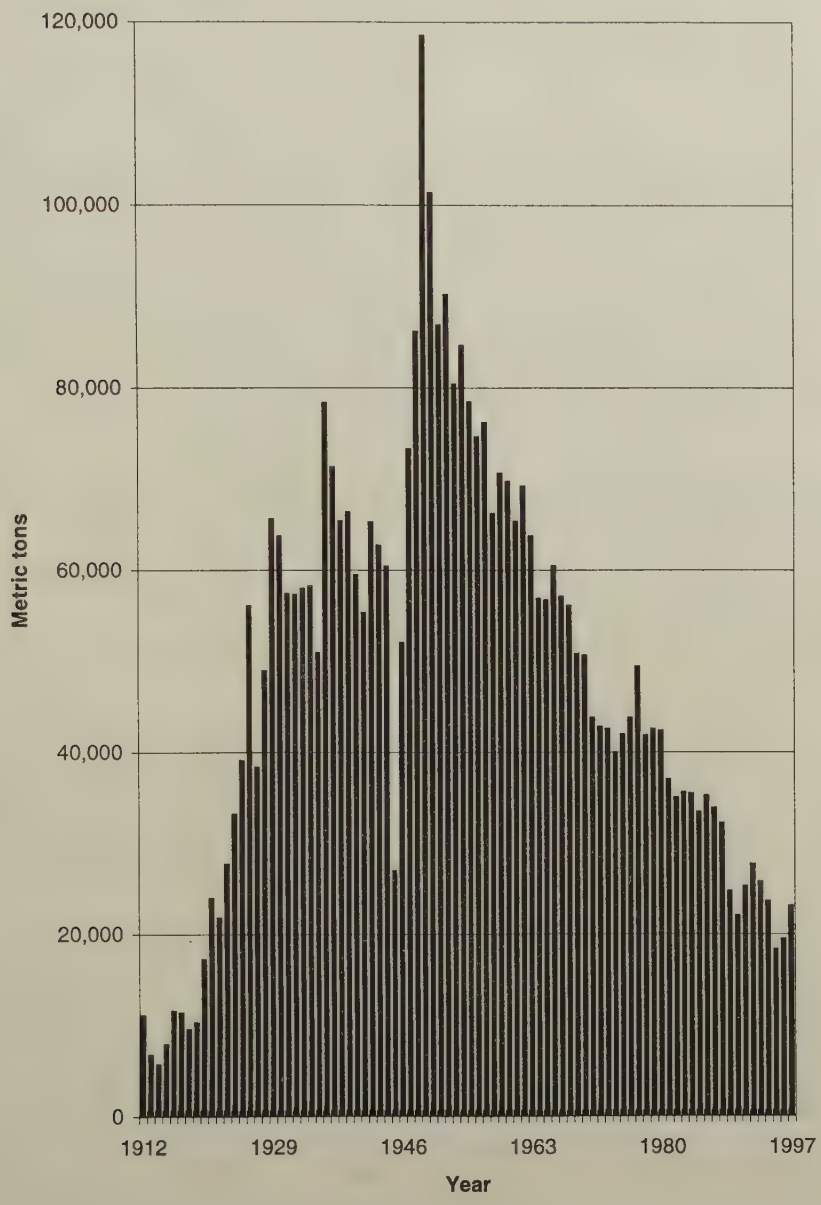

Figure 5. Japanese landings of sharks, 1912-1997 (metric tons). (Sources: Ministry of Agriculture, Forestry & Fisheries 1978, 1990, 1997 ; Suisan Tsushin Sha 1998)

Catch by Fishery

Japanese shark catches are primarily made as bycatch in other fisheries, but some directed fisheries for sharks also take place in waters off northeast Japan (Nakano 1994). Between 1991 and 1996, an average of 71 percent of sharks was caught by tuna longliners, and the rest by other longliners, trawl, gillnet and other methods (Table 5). Decline in the Japanese shark catches in recent years by tuna longline is parallel to the decline in total annual landings (Fig. 6). The Japanese tuna longline fishery is conducted in distant-waters using vessels larger than 120 gross tons, and in offshore and coastal waters of Japan using vessels of 20-120 gross tons and 10-20 tons, respectively. The number of tuna longliners has been decreasing over the years, from 2,443 in 1970 to 1,614 in 1996 (Fig. 7). The downward trend in the number of tuna longliners, mostly from the distant-water and offshore component, was due mainly to high cost of domestic labor, a shortage of fishermen, and mounting international competition (Suisan Sha 1989).

Table 5. Japanese shark landings by fisheries, 1991-1996 (metric tons).

Type of fishery	1991	1992	1993	1994	1995	1996
Tuna longline						
Distant	5,940	7,130	6,960	5,625	2,947	3,093
Offshore	10,139	10,753	10,882	8,207	8,054	9,143
Coastal	1,680	1,719	1,812	2,052	1,683	1,954
Sub-total	17,759	19,602	19,654	15,884	12,684	14,190
Other longline	1,700	1,913	1,478	1,783	2,030	1,775
Trawl	2,140	2,488	1,903	1,535	1,569	1,516
Gillnet	1,047	1,024	935	834	937	684
Others	2,521	2,562	1,703	3,501	1,066	1,228
Total	25,167	27,589	25,673	23,537	18,286	19,393

Source: Ministry of Agriculture, Forestry and Fisheries 1997

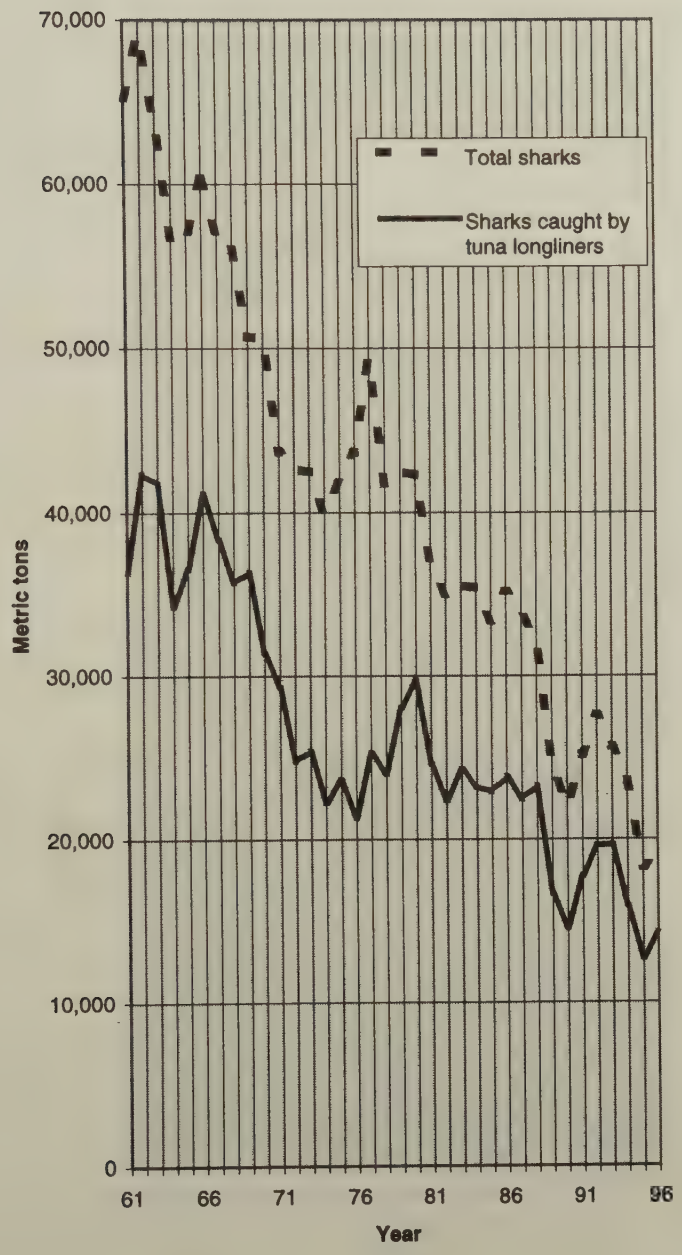

Figure 6. Japanese total landings of sharks and sharks caught by tuna longliners, 1961-1996 (metric tons). (Source: Ministry of Agriculture, Forestry & Fisheries 1963-1997)

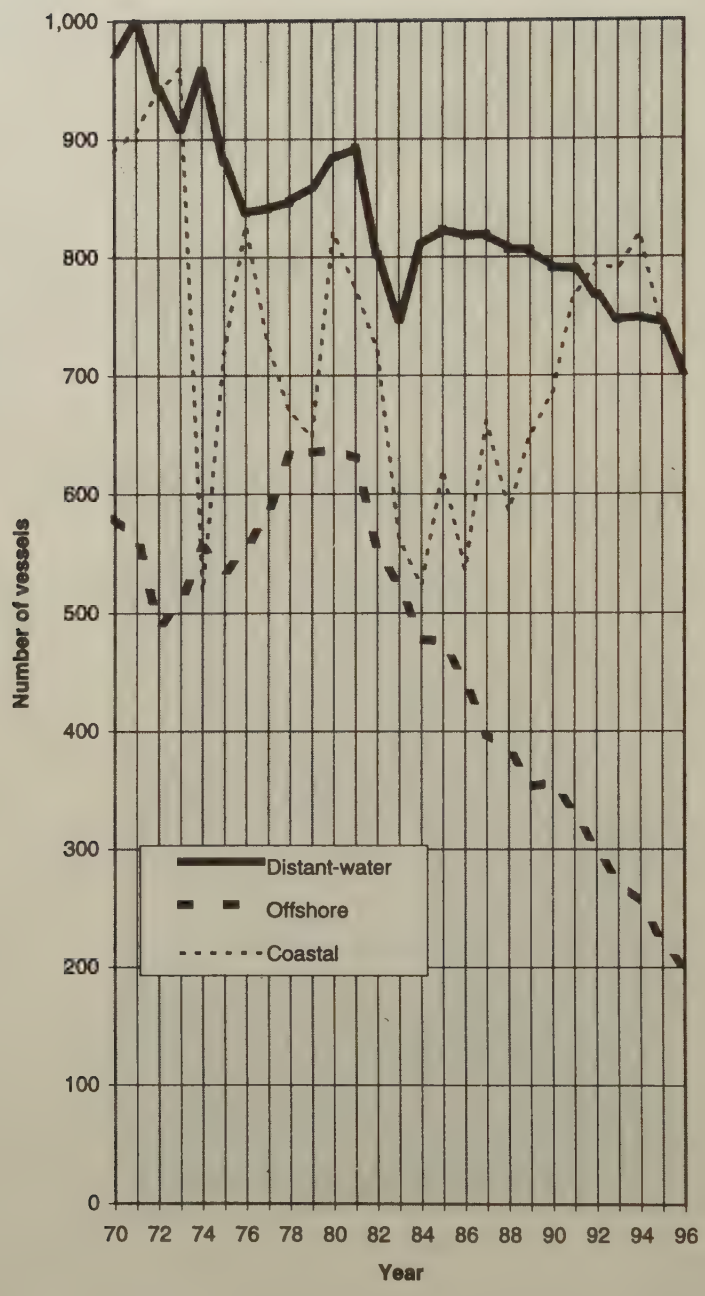

Figure 7. Japanese tuna longliners by number and class, 1970-1996.
(Source: Ministry of Agriculture, Forestry & Fisheries 1972-1997)

Catch by Ocean Areas

Most Japanese catches of sharks, between 83 and 98 percent from 1988 through 1996, occurred in the Pacific Ocean followed by the Atlantic Ocean (3 to 15 percent), and the Indian Ocean (1 to 4 percent; Table 6 and Fig. 8). The Pacific catch has fluctuated between 25,000 mt and 31,000 mt since 1988. Most of the catches of Pacific sharks were made in the northwestern sector. The Atlantic catch increased to 4,710 mt in 1994 but has since declined to 1,270 mt in 1996. Catches in the Indian Ocean have remained at low levels but at an upward trend after 1993.

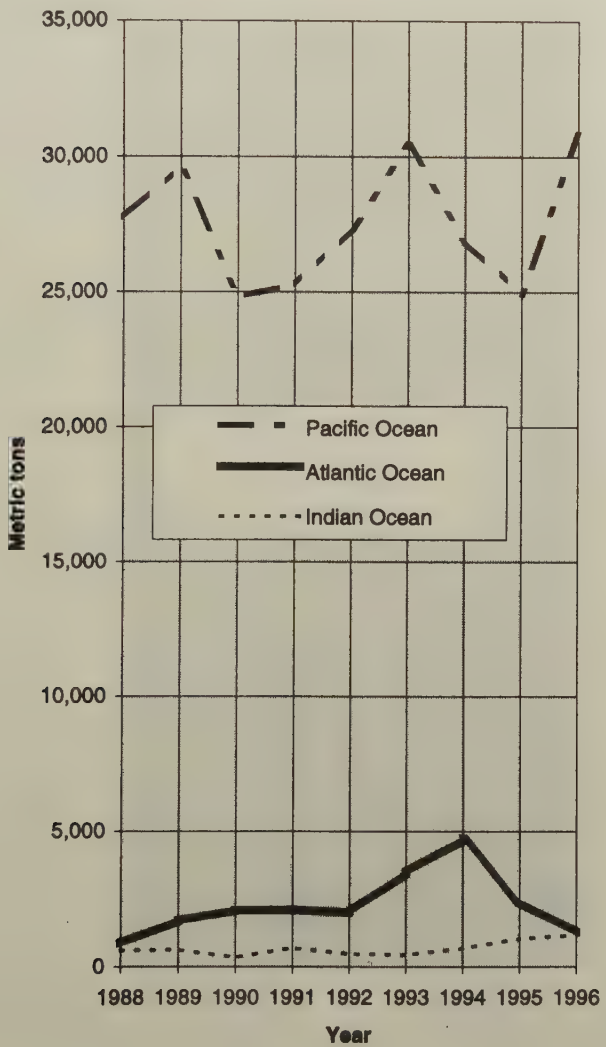

Figure 8. Japanese shark catches by ocean areas, 1988-1996 (metric tons). (Source: Ministry of Agriculture, Forestry & Fisheries 1993, 1997, 1998)

Table 6. Japanese shark catches by major FAO fishing area, 1988-1996 (metric tons).

Area**	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pacific Ocean									
61	18,569	21,520	17,334	18,741	19,960	23,330	18,864	18,535	25,929
77	5,086	4,833	4,103	3,445	4,788	3,591	3,645	4,428	2,755
81	2,306	1,688	1,450	1,451	1,201	1,757	1,812	971	1,063
87	1,118	802	1,285	960	901	996	1,415	492	802
71	566	654	606	498	464	780	1,124	503	286
67	110	164	42	73	39	-	14	-	-
sub-total	27,755	29,661	24,820	25,258	27,353	30,454	26,874	24,929	30,835
Atlantic Ocean									
34	77	447	642	520	576	1,412	977	981	559
47	348	746	714	783	647	1,140	1,295	592	342
21	168	165	112	212	522	553	1,350	348	183
27	8	22	59	98	67	174	322	386	115
41	260	232	481	433	188	185	731	80	60
31	1	93	81	68	7	13	30	15	9
37	-	-	-	-	-	3	5	10	2
sub-total	862	1,705	2,089	2,114	2,007	3,480	4,710	2,412	1,270
Indian Ocean									
51	258	223	151	153	332	196	502	289	699
57	346	404	192	548	145	244	185	761	476
sub-total	604	627	343	701	477	440	687	1,050	1,175
Total	29,221	31,993	27,252	28,073	29,837	34,374	32,271	28,391	33,280

Area** - Numbers refer to FAO fishing areas (see Figure 3)
Source: Ministry of Agriculture, Forestry and Fisheries, 1993, 1997, 1998

Catch by Species

Japan does not now report catch statistics for sharks by species. Between 1956 and 1967, however, Japan compiled and reported catch data by major species (Table 7 and Fig. 9). The Japanese catch of piked dogfish (or spiny dogfish, *Squalus acanthias)*, the major species landed between 1956 and 1959, declined from 29,000 mt in 1956 to 7,000 mt in 1967. In 1956, the catch of this species represented 39 percent of total Japanese shark catches but this dropped to 13 percent in 1967. Twenty-four percent of the decline in shark landings from 1956 to 1967 was mostly the result of decline in landings of piked dogfish. From 1960 through 1967, blue shark (*Prionace glauca)* became the major species landed in Japan. Landings of blue shark were relatively stable and fluctuated between 15,000 mt and 21,000 mt between 1956 and 1967. Landings of salmon shark (*Lamna ditropis)* were also relatively stable during the same period. Major species of sharks caught in Japanese fisheries are listed in Appendix 1.

Table 7. Japanese shark landings by major species, 1956-1967 (metric tons).

Year	Blue Shark	Piked dogfish	Salmon shark	Other Sharks	Total
1956	19,072	29,445	5,677	20,367	74,562
1957	17,385	30,258	5,081	23,414	76,139
1958	18,174	19,989	5,202	22,812	66,177
1959	18,946	22,583	4,441	24,575	70,546
1960	21,184	17,607	5,284	25,583	69,658
1961	20,559	15,371	6,689	22,668	65,287
1962	21,271	15,798	6,437	25,630	69,136
1963	19,717	11,660	5,189	27,111	63,677
1964	16,895	11,866	4,453	23,565	56,779
1965	14,537	8,200	4,103	29,788	56,628
1966	16,077	8,070	5,242	30,970	60,359
1967	15,136	7,151	3,630	31,090	57,009

Source: Ministry of Agriculture, Forestry & Fisheries 1967, 1969

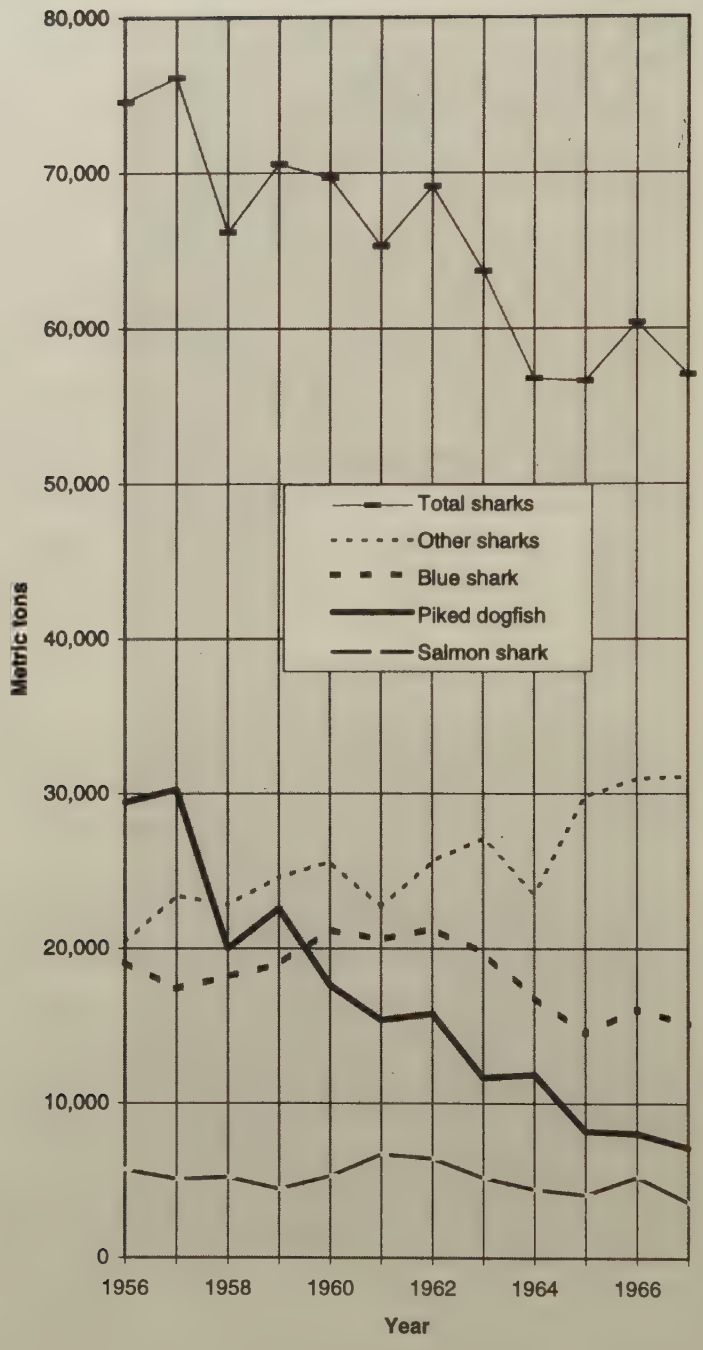

Figure 9. Japanese shark landings by major species, 1956-1967 (metric tons).
(Source: Ministry of Agriculture, Forestry & Fisheries 1967, 1969)

WORLD SHARK IMPORTS

Shark is an important commodity in the international market. Shark imports by major countries are listed in Tables 8-10. The global total in 1995 was 53,000 mt valued at $169 million. Frozen products dominated and represented 67 percent in volume and 61 percent in value (Fig. 10 and 11). Fresh products accounted for 30 percent in volume and 26 percent in value, followed by dried shark fins with 3 percent in volume and 13 percent in value.

In 1995, Spain led the world in import volume for all types of products combined, but Japan was the leading importer in value. Spain imported 9 percent in volume and 6 percent in value. In the same year, Japan imported 4 percent in volume and 10 percent in value.

France led in imports of fresh products in both volume and value with 24 percent in volume and 30 percent in value.

Spain led the world in volume of imports of frozen products. It accounted for 15 percent in volume and 9 percent in value. Whereas Japan's imports of frozen products in value was as much as 16 percent of the world total, its share in volume was only 6 percent. The average import price of frozen shark in 1995 was $8.20/kg for Japan and $2.01/kg for Spain.

In 1995, Hong Kong led the world in imports of dried shark fins, both in volume and value, by a wide margin. It accounted for 67 percent in volume and 60 percent in value in this category.

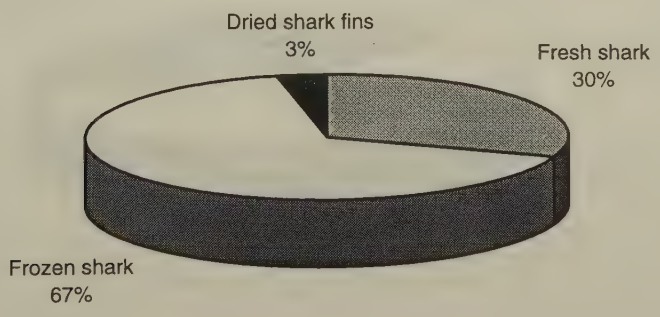

Figure 10. World imports of shark products by volume, 1995 (percent). (Source: FAO 1997)

Table 8. World imports of fresh shark by quantity and value, 1993-1995.

	Quantity (metric tons)			Value (U.S. $1,000)		
Country	1993	1994	1995	1993	1994	1995
France	3,766	3,520	3,824	12,329	12,404	13,275
U.S.A.	1,826	2,728	3,051	4,049	5,207	5,018
U.K.	1,203	1,762	1,985	1,381	3,246	4,051
Denmark	2,885	2,371	2,355	5,003	3,780	3,740
Germany	691	546	493	2,199	1,563	1,419
Canada	676	752	663	975	1,551	1,293
Netherlands	125	193	60	458	709	237
China, Taiwan	0	85	71	0	148	195
Mexico	606	857	83	377	755	72
Norway	5	1	2	82	9	21
Ireland	2	25	14	1	24	17
Others	3,816	3,488	3,619	15,841	15,994	15,216
Total	15,601	16,328	16,220	42,695	45,390	44,554

Source: FAO 1997

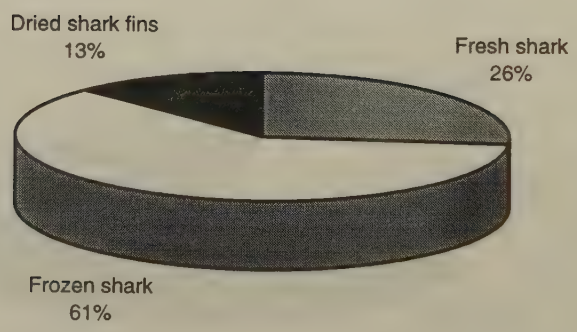

Figure 11. World imports of shark products by value, 1995 (percent). (Source: FAO 1997).

Table 9. World imports of frozen shark by quantity and value, 1993-1995.

Country	Quantity (metric tons)			Value (U.S. $1,000)		
	1993	1994	1995	1993	1994	1995
Japan	2,109	1,935	2,001	10,637	9,255	16,408
Spain	4,157	4,150	4,615	6,562	8,475	9,289
China, Mainland	536	547	771	5,097	4,969	7,300
Germany	2,818	1,932	1,766	8,318	6,647	5,039
Singapore	...*	...	1,401	...	...	4,847
United Kingdom	1,433	1,326	1,271	2,720	2,377	2,402
Canada	61	108	436	91	323	953
U.S.A.	110	166	69	390	681	825
China, Taiwan	13	9	300	7	9	218
Other countries	16,872	18,698	22,687	42,266	46,953	55,520
Total	28,019	28,871	35,317	76,088	79,689	102,801

...* - Data not available

Source: FAO 1997

Table 10. World imports of dried shark fins by quantity and value, 1993-1995.

Country	Quantity (metric tons)			Value (U.S. $1,000)		
	1993	1994	1995	1993	1994	1995
Singapore	1,093	1,190	...*	31,966	32,937	...
China, Mainland	3,080	3,375	...	16,773	18,335	...
Hong Kong	537	469	1,188	6,189	4,775	12,947
U.S.A.	202	114	142	8,414	4,548	2,491
Thailand	100	127	137	1,416	1,604	1,963
Macau	154	120	132	1,261	1,164	1,357
Malaysia	165	238	123	943	773	747
China, Taiwan	52	32	20	1,853	1,306	662
Korea, Rep.	1	2	2	261	288	206
Indonesia	3	2	6	67	141	59
South Africa	36	47	16	76	122	25
El Salvador	...	...	2	...	...	15
Others	12	14	14	781	735	1,135
Total	5,439	5,730	1,782	70,030	66,748	21,607

...* - Data not available

Source: FAO 1997

JAPANESE IMPORTS

Japan is a major importer of sharks. In 1997, Japan's imports of fresh, frozen sharks, and fresh, frozen shark meat were 1,810 mt valued about $18 million (Table 11-12). Frozen shark dominated, representing as much as 96 percent in volume and 93 percent in value. Frozen shark meat accounted for 2 percent in volume and 6 percent in value. Imports of fresh shark and fresh shark meat were minor with a combined share of about 2 percent in volume and 1 percent in value.

Between 1976 and 1997, imports of sharks fluctuated between 713 mt and 3,047 mt while steadily increasing in value from $598,000 to $18 million. The number of countries supplying sharks to Japan also increased from eight in 1976 to 24 including the United states in 1997. The increase in value was due mainly to the appreciation of the Japanese yen relative to U.S. dollar, but also in part to increased prices for sharks in Japan (Fig. 12). Exporters of fishery products have greatly benefited from the weaker dollar relative to the Japanese yen in recent years. The average annual value of the U.S. dollar relative to the yen has fallen 60 percent to 120 yen/U.S. dollar in 1997 from 297 yen/U.S.dollar in 1976 (Appendix 2). The annual average import price of frozen shark in 1997 increased five times in yen but 12 times in dollars from the 1976 level.

Spain became the leading supplier of frozen shark to Japan in 1997, passing Canada which had been the major supplier (Table 13 and 14). The United States has become the leading supplier of fresh shark and fresh shark meat to Japan in recent years (Table 15-18). China has been the dominant supplier of frozen shark meat to Japan (Table 19 and 20). In 1997, China's exports amounted to 94 percent by volume and 81 percent in value of frozen shark meat. In 1997, the United States for the first time emerged as a significant exporter of frozen shark meat to Japan. Japanese import statistics indicate that 36 mt of fresh shark and fresh shark meat were flown from the United States into Japan in 1997 (Japan Marine Products Importers Association 1998).

Japan regulates imports of fish and fishery products with import quotas (IQ) and tariffs. Over the years, Japan has relaxed its IQ and reduced trade barriers through multilateral and bilateral trade negotiations. Tariffs have been progressively reduced in GATT multilateral trade negotiation rounds. Japan has sufficiently relaxed its import regime so that it is now the world's largest importer of fishery products with 1997 imports of 16 billion dollars (FAO 1997 and Japan Marine Products Importers Association 1998).

Imports of shark products into Japan are subject to tariffs, but not IQ. As Japan and the United States are signatories to

the World Trade Organization (WTO), WTO tariffs apply to U.S. exports of shark products: 2.7 percent for 1998 and 2.5 percent for 1999 for fresh and frozen sharks and shark meat. The tariff rates are calculated as a percentage of total cost, including insurance and freight (CIF). Japanese importers of shark products are listed in Appendix 3.

Table 11. Japanese annual imports of sharks by quantity, 1976-1997 (metric tons).

Year	Frozen	Fresh	Frozen meat	Fresh meat	Total	Number of Suppliers
1976	713	-*	-	-	713	8
1977	1,766	-	-	-	1,766	9
1978	1,491	-	-	-	1,491	13
1979	1,483	1	-	-	1,484	11
1980	1,303	-	-	-	1,303	12
1981	1,354	-	-	-	1,354	11
1982	1,206	-	-	-	1,206	14
1983	1,410	1	-	-	1,411	13
1984	1,082	-	-	-	1,082	19
1985	1,764	-	-	-	1,764	11
1986	1,967	5	-	-	1,972	10
1987	1,884	23	-	-	1,907	16
1988	2,397	-	6	-	2,403	18
1989	1,796	1	3	-	1,800	24
1990	2,134	3	29	-	2,166	30
1991	3,011	3	33	-	3,047	28
1992	2,601	2	20	6	2,629	24
1993	2,019	1	23	3	2,046	28
1994	1,935	10	7	56	2,008	25
1995	2,001	4	6	95	2,106	22
1996	2,346	1	8	96	2,451	19
1997	1,732	1	42	35	1,810	24

-* - no imports

Source: Japan Marine Products Importers Association 1977-1998

Table 12. Japanese annual imports of sharks by value, 1976-1997 (U.S. $1,000).

Year	Frozen	Fresh	Frozen meat	Fresh meat	Total
1976	598	-*	-	-	598
1977	1,469	-	-	-	1,469
1978	1,172	-	-	-	1,172
1979	1,340	1	-	-	1,341
1980	1,436	-	-	-	1,436
1981	1,291	-	-	-	1,291
1982	1,300	-	-	-	1,300
1983	1,374	10	-	-	1,384
1984	1,202	-	-	-	1,202
1985	1,757	-	-	-	1,757
1986	2,200	13	-	-	2,213
1987	2,984	44	-	-	3,028
1988	4,467	-	66	-	4,533
1989	4,710	12	104	-	4,826
1990	5,675	20	547	-	6,242
1991	8,887	42	610	-	9,539
1992	10,007	14	1,077	21	11,119
1993	10,657	29	777	15	11,478
1994	9,281	61	255	271	9,868
1995	16,229	24	325	438	17,454
1996	18,049	7	355	523	18,934
1997	16,814	4	1,031	161	18,010

-* - no imports

Source: Japan Marine Products Importers Association 1977-1998

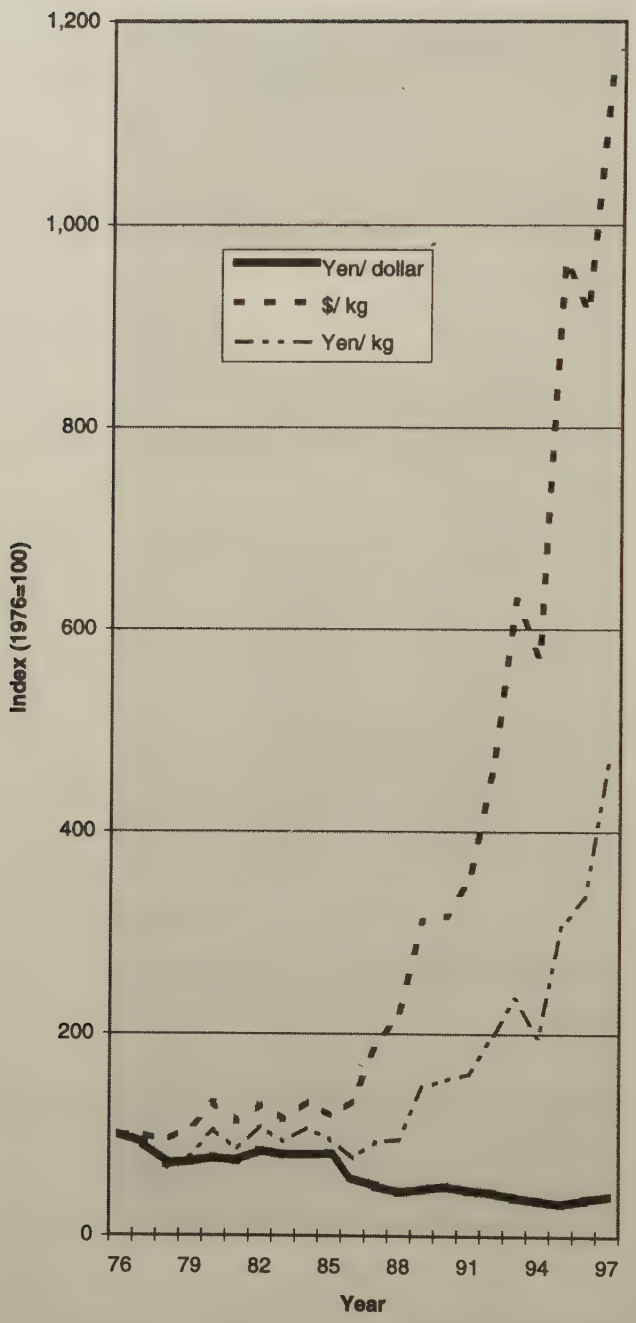

Figure 12. Index of Japanese annual average import prices of frozen shark, 1976-1997 (1976=100). (Source: Japan Marine Products Importers Association 1977-1998)

Table 13. Japanese annual imports of frozen shark by major countries and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
Spain	161	219	184	93	345	529	508
Canada	803	531	102	306	444	837	258
Ecuador	45	108	99	100	135	97	243
U.S.A.	505	668	130	586	407	383	169
Taiwan	547	488	648	266	124	110	149
New Zealand	216	85	12	161	207	109	104
China	-*	8	37	40	118	133	85
Korea, Rep.	237	144	75	91	17	24	47
Panama	19	31	13	42	49	37	37
Trinidad	-	-	-	-	-	-	34
Others	478	319	719	250	155	87	98
Total	3,011	2,601	2,019	1,935	2,001	2,346	1,732

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 14. Japanese annual imports of frozen shark by major countries and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
Spain	1,180	2,631	2,650	1,907	4,447	6,572	6,826
China	- *	1,605	3,379	3,045	7,625	7,210	5,032
Taiwan	2,251	1,645	1,104	359	193	189	1,609
Ecuador	241	425	832	629	775	891	1,487
Canada	1,367	946	172	578	790	1,510	413
U.S.A.	909	1,356	1,138	1,240	844	838	356
Panama	31	57	22	69	128	234	256
New Zealand	358	67	28	357	567	237	220
Korea, Rep.	382	226	100	119	24	31	73
Trinidad	-	-	-	-	-	-	53
Others	2,168	1,589	1,230	978	836	337	499
Total	8,887	10,007	10,657	9,281	16,229	18,049	16,814

-* - no imports

Source: Japan Marine Products Importers Association 1991-1998

Table 15. Japanese annual imports of fresh shark by country and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	3.5	0.7	0.6	10.0	3.3	1.5	0.8
China	-*	1.1	-	-	-	-	-
Turkey	-	-	0.7	-	-	-	-
Canada	-	-	-	-	1.2	-	-
Total	3.5	1.8	1.3	10.0	4.4	1.5	0.8

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 16. Japanese annual imports of fresh shark by country and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	41.5	11.0	9.9	60.7	17.2	6.6	4.2
China	-*	3.1	-	-	-	-	-
Turkey	-	-	19.1	-	-	-	-
Canada	-	-	-	-	6.4	-	-
Total	41.5	14.4	29.0	60.7	23.6	6.6	4.2

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 17. Japanese annual imports of fresh shark meat by country and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	-*	-	3.0	56.2	95.2	89.5	35.4
China	-	-	-	-	-	6.4	-
Singapore	-	6.5	-	-	-	-	-
Total	-	6.5	3.0	56.2	95.2	95.9	35.4

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 18. Japanese annual imports of fresh shark meat by country and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	-*	-	15.3	271.2	438.1	389.7	161.1
China	-	-	-	-	-	133.4	-
Singapore	-	20.6	-	-	-	-	-
Total	-	20.6	15.3	271.2	438.1	523.1	161.1

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 19. Japanese annual imports of frozen shark meat by country and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
China	21.3	10.6	18.0	3.6	2.5	7.6	34.3
U.S.A.	- *	-	-	-	-	-	4.6
Chile	-	-	-	-	-	-	3.3
Indonesia	0.2	-	-	0.1	-	0.1	0.1
Singapore	-	7.4	1.1	0.1	0.1	-	0.1
Spain	10.5	1.9	-	-	1.0	0.4	-
New Zealand	-	-	4.1	-	2.0	-	-
Hong Kong	0.8	-	-	0.1	-	-	-
Thailand	-	-	-	2.1	-	-	-
Guam	0.5	-	-	-	-	-	-
Costa Rica	-	-	-	-	0.3	-	-
Australia	-	-	-	0.9	-	-	-
Total	33.3	19.9	23.2	6.9	5.9	8.1	42.4

-* - no imports
Source: Japan Marine Products Importers Association 1992-1998

Table 20. Japanese annual imports of frozen shark meat by country and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
China	483.7	394.4	665.6	217.6	259.9	321.4	973.8
Chile	- *	-	-	-	-	-	39.9
U.S.A.	-	-	-	-	-	-	10.9
Indonesia	12.3	-	-	5.2	-	5.1	4.4
Singapore	-	608.9	105.9	5.2	11.8	-	1.8
Spain	63.5	73.3	-	-	12.7	28.4	-
New Zealand	-	-	5.5	-	4.7	-	-
Hong Kong	47.6	-	-	6.6	-	-	-
Thailand	-	-	-	5.9	-	-	-
Guam	3.1	-	-	-	-	-	-
Costa Rica	-	-	-	-	36.0	-	-
Australia	-	-	-	14.2	-	-	-
Total	610.0	1,076.6	777.0	254.7	325.1	354.9	1,030.8

-* - no imports
Source: Japan Marine Products Importers Association 1992-1998

Table 17. Japanese annual imports of fresh shark meat by country and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	-*	-	3.0	56.2	95.2	89.5	35.4
China	-	-	-	-	-	6.4	-
Singapore	-	6.5	-	-	-	-	-
Total	-	6.5	3.0	56.2	95.2	95.9	35.4

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 18. Japanese annual imports of fresh shark meat by country and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
U.S.A.	-*	-	15.3	271.2	438.1	389.7	161.1
China	-	-	-	-	-	133.4	-
Singapore	-	20.6	-	-	-	-	-
Total	-	20.6	15.3	271.2	438.1	523.1	161.1

-* - no imports

Source: Japan Marine Products Importers Association 1992-1998

Table 19. Japanese annual imports of frozen shark meat by country and volume, 1991-1997 (metric tons).

Country of origin	1991	1992	1993	1994	1995	1996	1997
China	21.3	10.6	18.0	3.6	2.5	7.6	34.3
U.S.A.	- *	-	-	-	-	-	4.6
Chile	-	-	-	-	-	-	3.3
Indonesia	0.2	-	-	0.1	-	0.1	0.1
Singapore	-	7.4	1.1	0.1	0.1	-	0.1
Spain	10.5	1.9	-	-	1.0	0.4	-
New Zealand	-	-	4.1	-	2.0	-	-
Hong Kong	0.8	-	-	0.1	-	-	-
Thailand	-	-	-	2.1	-	-	-
Guam	0.5	-	-	-	-	-	-
Costa Rica	-	-	-	-	0.3	-	-
Australia	-	-	-	0.9	-	-	-
Total	33.3	19.9	23.2	6.9	5.9	8.1	42.4

-* - no imports
Source: Japan Marine Products Importers Association 1992-1998

Table 20. Japanese annual imports of frozen shark meat by country and value, 1991-1997 (U.S. $1,000).

Country of origin	1991	1992	1993	1994	1995	1996	1997
China	483.7	394.4	665.6	217.6	259.9	321.4	973.8
Chile	- *	-	-	-	-	-	39.9
U.S.A.	-	-	-	-	-	-	10.9
Indonesia	12.3	-	-	5.2	-	5.1	4.4
Singapore	-	608.9	105.9	5.2	11.8	-	1.8
Spain	63.5	73.3	-	-	12.7	28.4	-
New Zealand	-	-	5.5	-	4.7	-	-
Hong Kong	47.6	-	-	6.6	-	-	-
Thailand	-	-	-	5.9	-	-	-
Guam	3.1	-	-	-	-	-	-
Costa Rica	-	-	-	-	36.0	-	-
Australia	-	-	-	14.2	-	-	-
Total	610.0	1,076.6	777.0	254.7	325.1	354.9	1,030.8

-* - no imports
Source: Japan Marine Products Importers Association 1992-1998

EXPORTS

Japanese exports of sharks and shark fins from 1993 through 1997 are summarized in Tables 21 and 22. In 1997, Japan exported 3,597 mt, amounting to $23 million worth of sharks and shark fins. Dried shark fins was the most important export products worth 13 million dollars, followed by frozen fillet ($6 million), frozen shark ($3 million), and fresh shark ($7,000).

Japanese exports of fresh shark are minor. From 1993 through 1997, only three countries purchased fresh shark from Japan. The major buyer was Italy which in 1994 purchased 20 metric tons of fresh shark valued at $77,000 (Tables 23 and 24).

Exports of frozen shark in 1997 increased by 86 percent in volume and 41 percent in value from the 1996 level. Mainland China was the major market for frozen shark taking 27 percent in volume and 32 percent in value of Japanese frozen shark exports in 1997. The Republic of Korea in 1997 received 22 percent of Japanese exports of frozen shark, an increase of 273 percent in volume and 88 percent in value over 1996 (Tables 25 and 26).

Singapore was the largest export market for frozen shark fillets, purchasing 696 mt valued at $3.2 million in 1997. This was a notable increase from the 1996 purchase of 183 mt of frozen shark fillets valued at $780,000 (Tables 27 and 28).

Exports of dried shark fins have remained rather stable in terms of both volume and value between 1993 and 1997 (Table 29 and 30). Hong Kong, the most important market for dried shark fins, purchased 77 percent in volume and 89 percent in value of Japanese exports of dried shark fins in 1997 (Tables 29 and 30).

Table 21. Japanese exports of sharks and shark fins by volume, 1993-1997 (metric tons).

Product Form	1993	1994	1995	1996	1997
Fresh	-*	20	-	14	0 **
Frozen	605	770	393	840	1,566
Frozen fillet	2,063	1,598	1,205	1,387	1,662
Dried shark fins	360	399	381	348	369
Total	3,028	2,787	1,979	2,589	3,597

-* - no exports
0** - more than zero but less than 0.5 metric tons

Source: Ministry of Finance 1994-1998

Table 22. Japanese exports of sharks and shark fins by value, 1993-1997 (U.S. $1,000).

Product Form	1993	1994	1995	1996	1997
Fresh	-*	77	-	51	7
Frozen	2,165	2,619	1,357	2,238	3,151
Frozen fillet	8,719	6,918	4,635	5,766	6,346
Dried shark fins	13,962	13,633	16,519	12,338	13,441
Total	24,846	23,247	22,511	20,393	22,945

-* - no exports

Sources: Ministry of Finance 1994-1998
Japan Marine Products Importers Association 1994-1998

Table 23. Japanese exports of fresh shark by country and volume, 1993-1997 (metric tons).

Country of destination	1993	1994	1995	1996	1997
Canada	- *	-	-	-	0.1
Korea, Rep	-	-	-	14.4	-
Italy	-	20.0	-	-	-
Total	-	20.0	-	14.4	0.1

-* - no exports

Source: Ministry of Finance 1994-1998

Table 24. Japanese exports of fresh shark by country and value, 1993-1997 (U.S. $1,000).

Country of destination	1993	1994	1995	1996	1997
Canada	- *	-	-	-	7.1
Korea, Rep	-	-	-	50.8	-
Italy	-	77.3	-	-	-
Total	-	77.3	-	50.8	7.1

-* - no exports

Sources: Ministry of Finance 1994-1998
Japan Marine Products Importers Association 1995, 1997, 1998

Table 25. Japanese exports of frozen shark by country and Volume, 1993-1997 (metric tons).

Country of destination	1993	1994	1995	1996	1997
China	50.4	19.6	10.0	231.8	429.0
Korea, Rep	- *	-	18.9	91.3	340.9
Peru	-	-	-	117.7	296.2
Canary Islands	-	-	-	1.4	166.0
Mauritius	-	-	166.2	205.8	106.2
Singapore	21.0	-	42.6	14.0	71.5
U.S.A.	13.6	-	13.5	45.2	61.5
Hong Kong	-	1.3	-	26.1	45.0
South Africa	14.5	16.6	3.0	22.8	24.3
Australia	-	-	-	-	22.0
Slovenia	65.0	9.0	18.0	28.4	2.0
Netherlands	185.0	388.6	29.0	38.1	1.0
Germany	50.0	75.5	-	12.0	-
Italy	134.4	163.5	67.2	5.0	-
Canada	-	-	-	0**	-
Denmark	-	-	6.0	-	-
New Zealand	5.0	-	18.9	-	-
Spain	50.0	52.0	-	-	-
Gibraltar	-	44.0	-	-	-
Taiwan	1.2	-	-	-	-
Belgium	14.5	-	-	-	-
Total***	604.6	770.0	393.2	839.6	1,565.6

-* - no exports
0** - more than zero but less than 0.05 metric tons
*** - may not add due to rounding

Source: Ministry of Finance 1994-1998

Table 26. Japanese exports of frozen shark by country and value, 1993-1997 (U.S. $1,000).

Country of destination	1993	1994	1995	1996	1997
China	311.7	24.1	17.3	130.9	1,014.0
Hong Kong	-*	10.6	-	283.4	474.1
Mauritius	-	-	581.2	819.7	427.3
Korea, Rep	-	-	43.4	196.9	369.8
U.S.A.	44.1	-	65.1	287.6	311.8
Singapore	71.3	-	137.2	105.4	255.3
Peru	-	-	-	52.7	128.2
Canary Islands	-	-	-	2.1	86.6
South Africa	16.7	18.2	3.1	29.8	37.7
Australia	-	-	-	-	33.4
Slovenia	203.9	30.7	64.1	108.8	8.4
Netherlands	643.2	1,502.8	112.2	157.2	4.2
Germany	171.8	186.0	-	38.1	-
Italy	455.5	604.1	246.8	20.5	-
Canada	-	-	-	4.7	-
Denmark	-	-	23.1	-	-
New Zealand	5.9	-	63.5	-	-
Spain	68.9	47.6	-	-	-
Gibraltar	-	195.1	-	-	-
Taiwan	156.8	-	-	-	-
Belgium	15.5	-	-	-	-
Total**	2,165.4	2,619.1	1,357.0	2,237.9	3,150.8

-* - no exports
** - may not add due to rounding

Sources: Ministry of Finance 1994-1998

Table 27. Japanese exports of frozen shark fillet by country and volume, 1993-1997 (metric tons).

Country of destination	1993	1994	1995	1996	1997
Singapore	21.0	- *	739.6	182.9	696.1
Korea, Rep	-	-	39.1	56.9	299.1
Mauritius	-	-	41.8	27.8	224.5
Germany	797.6	296.8	44.0	296.0	110.0
Italy	482.1	528.5	123.8	301.0	110.0
Hong Kong	-	-	-	-	93.5
China	-	17.1	-	-	72.0
Netherlands	297.0	521.0	124.6	269.9	22.0
Slovenia	55.0	34.0	19.0	103.6	20.0
Canary Islands	-	-	-	-	8.8
South Africa	48.9	36.1	22.0	27.0	6.1
France	144.0	51.5	9.0	66.0	-
Belgium	-	-	-	44.0	-
Brazil	-	-	-	11.7	-
U.S.A.	7.8	3.9	24.0	-	-
Denmark	100.0	-	16.0	-	-
Sweden	-	1.0	2.0	-	-
Spain	110.0	17.8	-	-	-
Gibraltar	-	88.1	-	-	-
Panama	-	2.0	-	-	-
Total**	2,063.4	1,597.8	1,205.0	1,386.8	1,662.1

-* - no exports
** - may not add due to rounding

Source: Ministry of Finance 1994-1998

Table 28. Japanese exports of frozen shark fillet by country and value, 1993-1997 (U.S. $1,000).

Country of destination	1993	1994	1995	1996	1997
Singapore	97.3	- *	2,860.0	775.5	3,151.0
Mauritus	-	-	145.3	115.8	950.7
Korea. Rep.	-	-	103.5	208.4	908.7
Italy	2,072.1	2,358.4	505.5	1,299.6	491.1
Germany	3,444.5	1,326.3	188.3	1,271.3	482.2
Hong Kong	-	-	-	-	104.8
Netherlands	1,268.9	2,309.0	521.6	1,162.0	92.9
Slovenia	245.7	157.5	83.1	403.7	84.2
China	-	15.6	-	-	51.9
Canary Islands	-	-	-	-	17.7
South Africa	69.6	54.8	38.1	41.7	10.7
France	620.1	211.8	32.3	269.2	-
Belgium	-	-	-	206.2	-
Brazil	-	-	-	13.0	-
U.S.A.	53.2	28.9	85.3	-	-
Denmark	435.3	-	61.7	-	-
Sweden	-	4.6	9.8	-	-
Spain	412.3	37.7	-	-	-
Gibraltar	-	408.2	-	-	-
Panama	-	5.1	-	-	-
Total	8,719.0	6,917.9	4,635.3	5,766.4	6,345.9

-* - no exports

Sources: Ministry of Finance 1994-1998
Japan Marine Products Importers Association 1994-1998

Table 29. Japanese exports of dried shark fins by country and Volume, 1993-1997 (metric tons).

Country of destination	1993	1994	1995	1996	1997
Hong Kong	283.8	309.6	321.4	280.7	285.9
China	0.4	0.2	10.5	23.4	42.6
Indonesia	-*	-	-	7.5	21.0
Singapore	57.8	79.5	42.0	34.7	17.8
Australia	-	-	0.1	-	1.2
Guam	0.9	1.0	0.9	0.6	0.5
Canada	0**	0.2	0.2	-	0.2
Mariana	0.1	0.1	0.1	0.1	0
Turkey	-	-	-	0	0
Thailand	13.2	8.5	2.6	1.3	-
Taiwan	3.9	-	2.7	-	-
U.S.A.	3.9	-	-	-	-
Total***	360.4	399.0	380.5	348.4	369.3

-* - no exports
0** - more than zero but less than 0.05 metric tons
*** - may not add due to rounding

Source: Ministry of Finance 1994-1998

Table 30. Japanese exports of dried shark fins by country and Value, 1993-1997 (U.S. $1,000).

Country of destination	1993	1994	1995	1996	1997
Hong Kong	11,372.8	10,574.0	14,411.3	10,657.0	11,903.5
Singapore	2,045.5	2,838.5	1,645.3	1,139.9	613.8
China	3.8	7.7	230.3	264.5	606.9
Indonesia	-*	-	-	74.8	191.6
Guam	48.4	42.0	62.1	68.4	69.3
Australia	-	-	14.7	-	33.3
Canada	2.1	11.2	13.5	-	14.4
Mariana	9.2	7.2	9.8	10.2	4.1
Turkey	-	-	-	4.7	4.2
Thailand	267.2	152.5	46.4	118.7	-
Taiwan	163.8	-	85.8	-	-
U.S.A.	49.3	-	-	-	-
Total**	13,962.1	13,633.1	16,519.2	12,338.4	13,441.1

-* - no exports
** - may not add due to rounding

Sources: Ministry of Finance 1994-1998
Japan Marine Products Importers Association 1994-1998

SUPPLY

Supply of sharks for the Japanese market comes from both domestic catches as well as imports (Table 31 and Fig. 13). The percentage of the Japanese shark market supplied by imports has averaged about 9 percent in the present decade.

Between 1989 and 1997, annual shark supplies ranged between 20,000 mt and 30,000 mt, averaging 25,483 mt. During this period the catch averaged 23,253 mt (about 91 percent of the total supply), and the imports 2,229 mt (about 9 percent).

Table 31. Japanese annual supply of sharks, 1976-1997 (metric tons).

Year	Catch	Imports	Supply	Imports as % of supply
1976	43,652	713	44,386	1.6
1977	49,338	1,766	51,104	3.5
1978	41,784	1,491	43,275	3.5
1979	42,480	1,484	43,964	3.4
1980	42,286	1,303	43,589	3.0
1981	36,979	1,354	38,333	3.5
1982	34,984	1,206	36,190	3.3
1983	35,533	1,411	36,944	3.8
1984	35,380	1,082	36,462	3.0
1985	33,390	1,764	35,154	5.0
1986	35,139	1,972	37,111	5.3
1987	33,809	1,907	35,716	5.3
1988	32,128	2,403	34,531	7.0
1989	24,659	1,800	26,459	6.8
1990	21,979	2,166	24,145	9.0
1991	25,167	3,047	28,214	10.8
1992	27,589	2,629	30,218	8.7
1993	25,673	2,046	27,719	7.4
1994	23,537	2,008	25,545	7.9
1995	18,286	2,106	20,392	10.3
1996	19,393	2,451	21,844	11.2
1997	23,000	1,810	24,810	7.3

Sources: Ministry of Agriculture, Forestry and Fisheries 1978, 1990, 1997
Suisan Tsushin Sha 1998
Japan Marine Products Importers Association 1977-1998

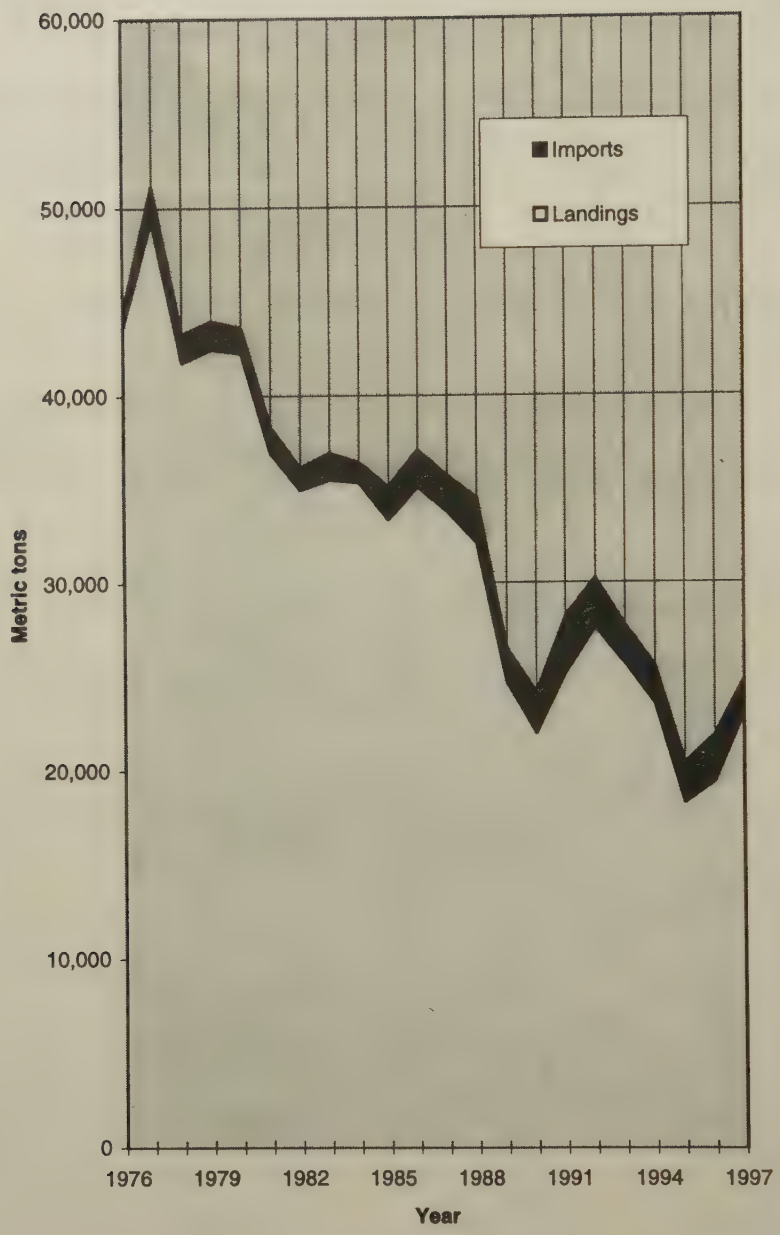

Figure 13. Japanese annual supply of sharks, 1976-1997 (metric tons). (Sources: Ministry of Agriculture, Forestry & Fisheries 1978, 1990, 1997 ; Suisan Tsushin Sha 1998; Japan Marine Products Importers Association 1977-1998)

CONSUMPTION

The annual Japanese apparent consumption of sharks (supply minus exports) was about 21,000 mt in 1997, an increase of 10 percent compared with 1996 (Table 32). Between 1993 and 1997, annual apparent consumption of sharks averaged about 21,000 mt.

Table 32. Japanese apparent consumption* of sharks, 1993-1997 (metric tons).

	1993	1994	1995	1996	1997
Supply	27,719	25,545	20,392	21,844	24,810
Export	3,028	2,787	1,979	2,589	3,597
Apparent Consumption	24,691	22,758	18,413	19,255	21,213

* Apparent consumption - supply minus exports

Sources: Ministry of Agriculture, Forestry and Fisheries 1997
Suisan Tsushin Sha 1998
Japan Marine Products Importers Association 1994-1998
Ministry of Finance 1994-1998

UTILIZATION

In Japan, shark meat is utilized raw, broiled, reconstituted after being dried-salted, and in fish cakes. The fins are used for shark-fin soup, mainly in Chinese restaurants. The hides are processed into leather. Shark liver is also utilized for its oil, and the meat is made into fishmeal (Taniuchi 1995).

MARKET

Sharks are sold through auctions, at consumer wholesale markets located in consumption areas, and at production wholesale markets located at Japanese ports of landings. Sharks are also sold directly to processors and representatives of supermarket chains (K. Oogane, pers. comm.[1]). There are about 270 consumer and 340 production wholesale markets for fish in Japan (Suisan sha 1993 and 1995). The largest consumer fish wholesale market is the Tokyo Central Wholesale Market. In 1997, this market handled about 720,000 mt of fishery products valued at about six billion dollars (Minato Shinbun Sha March 9, 1998). It therefore plays an important role in providing information on the supply and demand of fishery products in Japan. Also, the wholesale price determined at the Tokyo Central Wholesale Market generally serves as a price index for fishery products throughout the world.

Wholesale prices for sharks vary widely, depending on quality, species, product form, supply and demand, and other factors. Tables 33 through 44 show monthly and annual average wholesale prices and sales volumes of sharks at the Tokyo Central Wholesale Market between 1986 and 1997. Fresh piked shark received higher prices than other sharks. In recent years, fresh blue shark has commanded higher prices than fresh mako shark and fresh salmon shark. In 1997, wholesale prices of fresh blue shark increased 8 percent and frozen 4 percent, from 1996 levels while prices of other sharks except fresh mako shark declined.

Annual average wholesale prices fluctuated for all species (Fig. 14 and 15) and the fluctuations were influenced mainly by volume of supply (domestic catch and imports). As is usually the case, the greater the supply, the lower the price. The supply of sharks continued to decline sharply from 1987 through 1990 and prices of shark started to increase from 1989 through 1991. Wholesale prices for fresh and frozen sharks were highest in 1991, except those for frozen blue shark. Highest price of frozen blue shark occurred in 1992.

Monthly average wholesale prices of fresh shark increased during winter (Fig. 16). Demand for shark meat peaks during winter as consumption increases.

In recent years, wholesale prices of fresh shark at the Tokyo Central Wholesale Market have been higher than those of frozen shark.

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[1]Personal Communication: Oogane, K. Kitada Suisan Co. Ltd. 5-11-11 Kachidoki, Chuo-ku, Tokyo, Japan. July 1998.

Table 33. Monthly sales volume of fresh blue shark at Tokyo Central Wholesale Markets, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	43	46	44	43	43	46	44	29	30	26	25	21
February	44	41	48	45	54	46	44	33	25	28	27	25
March	37	37	41	50	43	41	38	23	22	32	23	20
April	34	31	32	39	34	31	27	21	18	18	20	19
May	33	31	27	37	28	24	23	19	13	21	19	19
June	28	28	25	27	25	22	25	16	17	19	21	17
July	28	27	28	26	25	20	21	16	17	14	17	14
August	26	26	27	23	20	23	21	14	14	11	13	14
September	37	32	41	40	35	29	33	21	20	19	19	18
October	46	40	53	62	45	46	40	27	29	24	24	19
November	56	46	60	64	54	53	36	28	32	25	27	20
December	72	71	73	54	51	62	41	32	31	33	31	25
Jan.-Dec.*	485	456	497	511	457	442	395	278	268	270	267	234

* - may not add due to rounding

Source: Tokyo Metropolitan Government 1987-1998

Table 34. Monthly average wholesale prices of fresh blue shark at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	236	199	251	224	415	480	446	477	561	489	421	413
February	265	211	272	278	470	595	536	548	511	518	462	464
March	212	198	227	303	461	562	446	494	487	422	508	469
April	185	176	212	324	385	482	411	430	407	451	426	478
May	229	178	212	269	313	421	346	383	357	378	398	465
June	182	175	213	256	296	400	345	328	380	335	368	422
July	166	168	201	230	270	324	337	335	338	305	300	406
August	157	156	192	210	251	282	310	336	273	258	286	353
September	164	190	189	203	285	352	311	290	320	283	273	336
October	191	258	190	278	403	417	348	348	418	347	345	410
November	202	241	204	406	452	468	482	467	468	346	440	464
December	192	239	197	358	452	453	427	373	365	357	389	400
Jan.-Dec.	201	206	213	291	393	455	408	414	422	386	394	426

Source: Tokyo Metropolitan Government 1987-1998

Table 35. Monthly average wholesale prices of frozen blue shark at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	161	188	207	262	178	195	257	228	228	214	190	202
February	199	197	158	164	184	202	259	244	235	224	197	202
March	217	197	175	184	204	233	249	246	240	226	199	179
April	186	140	227	197	176	225	274	259	240	211	199	216
May	229	169	200	166	179	254	256	247	238	236	178	210
June	224	212	101	155	213	244	251	256	244	206	204	210
July	219	199	81	150	185	236	277	256	228	210	210	219
August	231	205	-*	195	185	266	257	244	234	208	172	186
September	199	182	136	189	202	242	226	229	222	199	201	200
October	204	187	135	167	199	255	238	225	218	195	195	209
November	199	182	123	191	191	246	225	224	220	198	202	200
December	209	204	126	174	183	252	234	234	215	195	196	206
Jan.-Dec.	207	190	162	187	193	235	245	235	228	208	198	205

-* - No sales

Source: Tokyo Metropolitan Government 1987-1998

Table 36. Monthly sales volume of frozen blue shark at Tokyo Central Wholesale Market, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	30	24	17	15	22	24	22	17	18	9	13	21
February	32	26	2	10	12	19	19	13	20	30	18	27
March	24	17	2	17	51	18	10	11	10	14	10	3
April	14	3	11	11	10	12	8	7	7	9	10	9
May	7	11	1	15	8	10	5	5	6	5	1	8
June	101	8	3	1	6	7	7	6	7	6	6	8
July	9	8	1	2	4	8	3	5	5	5	7	9
August	9	9	-*	9	5	8	4	5	6	6	2	2
September	17	26	7	13	17	14	19	11	18	15	20	16
October	75	43	15	22	37	23	20	24	15	16	17	25
November	28	45	12	32	23	25	21	21	26	29	31	14
December	34	35	8	33	25	23	21	22	9	19	17	20
Jan.-Dec.**	380	256	79	180	220	190	159	145	147	162	153	161

-* - No sales
** - may not add due to rounding

Source: Tokyo Metropolitan Government 1987-1998

Table 37. Monthly average wholesale prices of fresh piked dogfish at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	950	820	1,030	1,074	1,092	1,367	1,142	1,049	1,004	1,111	872	1,066
February	818	723	991	825	836	1,223	1,244	1,121	1,165	1,020	1,072	992
March	875	810	984	796	1,092	1,298	1,172	1,130	1,122	1,102	1,087	1,078
April	797	703	802	727	1,061	1,138	853	1,151	1,117	1,130	1,067	895
May	536	632	765	756	872	1,057	986	892	1,113	700	899	865
June	596	719	785	930	889	904	640	876	931	729	693	697
July	709	691	769	1,028	1,068	1,077	853	933	825	896	995	829
August	554	732	897	1,210	974	1,526	1,014	1,078	882	942	1,009	1,146
September	799	748	967	922	889	1,091	944	1,142	1,073	944	1,061	1,129
October	1,012	795	1,076	1,250	1,137	1,155	1,038	1,090	1,007	791	1,070	930
November	872	877	852	1,008	1,206	1,188	1,081	1,181	970	1,130	956	1,081
December	762	896	1,043	1,323	1,444	945	1,022	1,074	1,124	1,129	1,024	1,230
Jan.-Dec.**	817	785	916	916	1,008	1,151	1,022	1,067	1,047	971	977	965

Source: Tokyo Metropolitan Government 1987-1998

Table 38. Monthly sales volume of fresh piked dogfish at Tokyo Central Wholesale Market, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	29	42	22	17	8	8	11	13	11	9	10	8
February	44	48	33	28	20	12	12	10	9	12	9	12
March	22	30	27	12	9	9	10	9	9	10	6	5
April	16	23	22	11	8	8	7	4	6	6	7	6
May	17	15	18	9	9	5	5	5	4	7	4	5
June	9	12	11	7	6	7	9	5	5	7	6	7
July	3	7	12	4	2	2	3	4	3	3	2	2
August	1	4	3	1	0*	0	1	2	1	1	2	1
September	5	12	2	2	5	3	8	2	2	4	3	2
October	15	37	13	5	5	7	8	5	6	9	5	5
November	36	36	38	10	6	8	10	6	8	6	5	3
December	38	29	16	3	5	8	9	6	5	6	5	2
Jan.-Dec.**	235	295	217	110	82	78	93	72	69	80	63	59

0* - more than zero but less than 0.5 metric tons
** - may not add due to rounding

Source: Tokyo Metropolitan Government 1987-1998

Table 39. Monthly average wholesale prices of fresh mako shark at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	287	356	266	252	321	396	480	329	315	310	298	337
February	306	308	267	232	394	410	404	348	293	264	313	351
March	334	389	370	239	416	445	388	343	309	294	284	312
April	339	342	282	252	344	416	397	316	263	305	262	385
May	260	314	270	287	388	408	359	315	261	359	298	304
June	310	325	268	266	374	421	366	297	294	320	299	360
July	287	308	155	249	323	274	320	288	297	239	303	353
August	285	203	152	238	244	423	308	272	275	251	300	375
September	383	355	246	292	315	379	329	282	296	323	324	399
October	304	306	283	307	335	395	338	285	326	314	342	355
November	283	308	271	285	344	347	328	292	324	250	345	342
December	247	312	237	298	406	354	290	285	286	230	328	409
Jan.-Dec.	304	309	253	270	349	381	355	305	299	284	312	357

Source: Tokyo Metropolitan Government 1987-1998

Table 40. Monthly sales volume of fresh mako shark at Tokyo Central Wholesale Market, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	16	11	12	10	9	6	8	10	9	8	7	9
February	15	7	12	10	5	7	9	8	9	8	8	7
March	9	6	7	7	4	6	7	8	7	7	5	6
April	8	3	6	5	7	5	5	6	5	3	6	4
May	10	5	4	5	4	4	5	4	4	5	5	5
June	8	3	4	6	4	3	5	5	4	7	5	4
July	8	3	11	5	4	7	4	5	4	5	5	4
August	5	4	5	3	4	3	4	4	3	4	4	3
September	7	4	6	7	7	5	9	6	6	6	6	7
October	12	9	8	11	9	11	10	10	8	7	10	7
November	13	14	10	9	7	10	8	9	8	12	8	7
December	14	15	12	12	8	12	15	11	9	10	10	9
Jan.-Dec.*	123	84	96	89	72	79	90	85	76	81	81	73

* - may not add due to rounding

Source: Tokyo Metropolitan Government 1987-1998

Table 41. Monthly average wholesale prices of fresh salmon shark at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	310	315	339	388	440	582	508	423	539	476	494	410
February	294	349	341	364	440	505	385	370	311	377	375	405
March	329	310	294	348	376	587	442	310	411	409	418	471
April	303	310	385	327	437	597	383	401	419	484	481	415
May	261	277	302	281	439	482	280	308	346	359	362	362
June	265	301	300	299	513	568	294	346	300	324	288	337
July	282	377	312	315	562	517	440	490	358	339	307	329
August	316	370	322	367	678	514	397	571	366	380	468	404
September	326	367	318	370	616	530	445	444	405	347	403	391
October	337	301	332	416	651	586	391	451	443	427	399	372
November	372	408	370	405	462	711	306	470	412	479	414	361
December	334	360	412	528	572	407	394	498	447	515	407	408
Jan.-Dec.	303	329	326	343	487	529	376	390	380	394	388	383

Source: Tokyo Metropolitan Government 1987-1998

Table 42. Monthly sales volume of fresh salmon shark at Tokyo Central Wholesale Market, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	37	24	24	22	9	20	24	12	13	7	13	15
February	56	29	41	43	26	21	40	33	51	17	28	20
March	35	33	65	32	26	22	35	61	28	20	25	21
April	43	47	32	48	37	26	42	33	34	21	24	27
May	46	39	47	50	35	35	45	30	31	35	36	36
June	43	23	37	40	21	15	33	25	28	34	35	32
July	39	22	40	38	22	27	17	17	21	23	34	32
August	27	14	32	15	15	17	11	7	18	19	18	21
September	28	30	43	17	16	15	7	7	21	21	26	28
October	41	21	25	10	3	4	19	26	21	25	32	32
November	16	14	9	18	3	21	21	20	23	21	25	30
December	14	22	25	10	2	25	13	16	10	8	15	27
Jan.-Dec.*	425	321	419	343	215	247	307	287	299	250	311	320

* - may not add due to rounding

Source: Tokyo Metropolitan Government 1987-1998

Table 43. Monthly average wholesale prices of frozen salmon shark at Tokyo Central Wholesale Market, 1986-1997 (yen/kg).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	377	395	440	250	263	622	421	317	343	130	361	227
February	337	376	378	271	335	619	535	202	527	244	331	245
March	367	332	344	361	392	539	475	313	361	246	276	435
April	303	303	363	254	378	622	323	346	256	251	241	372
May	304	350	369	210	557	561	331	277	750	236	541	440
June	348	426	413	369	726	627	488	368	274	258	361	373
July	334	452	411	293	594	491	904	246	382	232	341	415
August	393	442	334	305	492	385	375	361	272	232	268	240
September	368	326	291	269	514	624	348	390	235	238	247	174
October	360	338	196	286	502	433	526	337	312	237	250	199
November	402	402	336	243	567	500	251	185	260	231	285	-*
December	325	373	321	239	648	266	381	284	306	254	279	400
Jan.-Dec.*	348	367	323	254	470	502	393	306	313	230	286	271

-* - no sales

Source: Tokyo Metropolitan Government 1987-1998

Table 44. Monthly sales volume of frozen salmon shark at Tokyo Central Wholesale Market, 1986-1997 (metric tons).

Month	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	6.0	8.1	4.4	4.7	2.8	2.1	0.5	1.7	0.1	1.1	0.2	1.2
February	10.7	7.5	7.0	12.3	5.1	1.3	2.1	1.7	0.5	1.1	2.0	1.0
March	8.5	7.1	3.8	2.0	4.1	2.5	1.2	1.6	0.1	1.2	0.3	0.2
April	10.9	8.2	3.6	2.0	3.0	1.6	1.2	2.4	1.3	1.1	1.1	0.1
May	11.4	6.1	3.1	15.4	1.6	1.0	2.5	0.3	0.2	1.2	0.2	0.1
June	6.4	4.3	2.2	0.9	2.8	1.3	0.3	2.0	0.7	0.3	0.1	0.1
July	3.9	2.8	0.7	1.1	3.3	1.4	0.2	1.3	1.2	1.0	1.2	0.2
August	6.5	7.3	2.2	2.0	2.2	1.7	0.2	0.2	1.8	1.0	0.5	0.1
September	10.0	8.4	8.8	2.5	1.8	0.9	2.3	0.3	1.2	1.1	1.6	0.3
October	14.9	11.0	10.7	7.5	3.6	1.9	0.6	1.3	1.1	1.1	2.4	0.1
November	5.9	6.0	5.9	14.4	2.4	1.2	1.9	0.2	1.4	1.0	2.0	-*
December	9.1	4.8	4.6	6.2	0.7	2.9	0.6	2.1	1.2	1.2	1.6	0.2
Jan.-Dec.	104.2	81.4	57.0	71.0	33.7	19.7	13.5	15.0	11.3	13.0	13.2	3.6

-* - no sales

Source: Tokyo Metropolitan Government 1987-1998

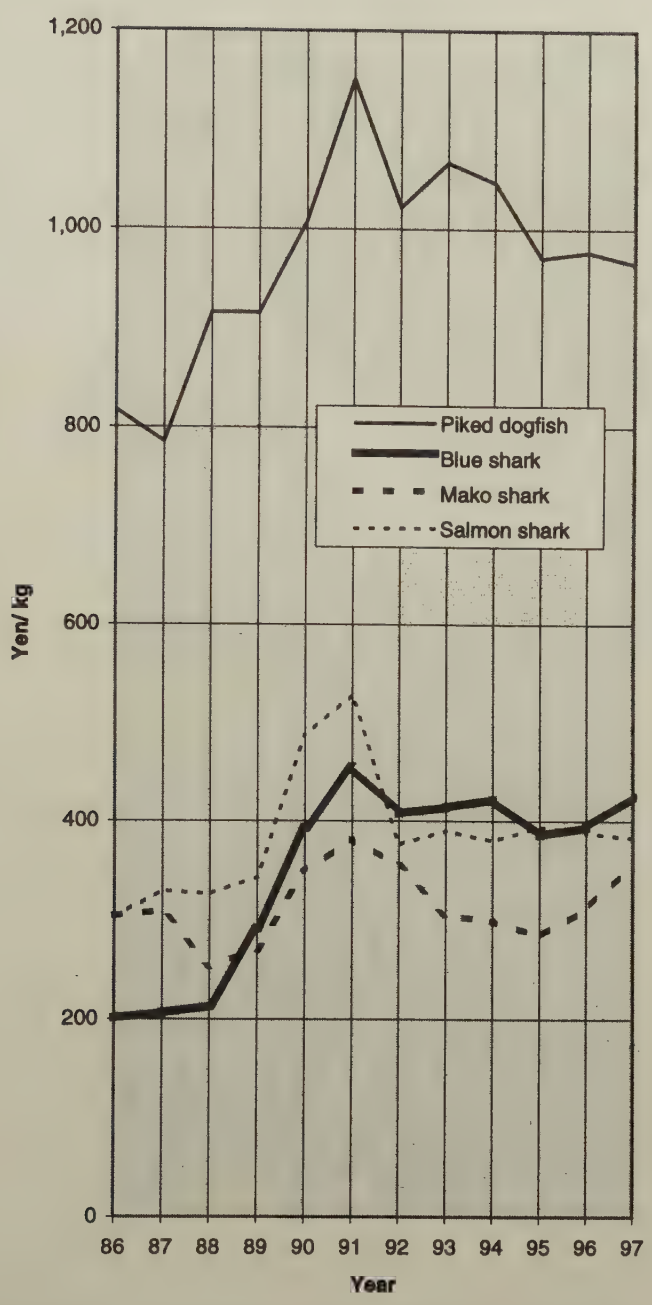

Figure 14. Annual average wholesale prices of fresh sharks, 1986-1997 (yen/kg).
(Source: Tokyo Metropolitan Government 1987-1998)

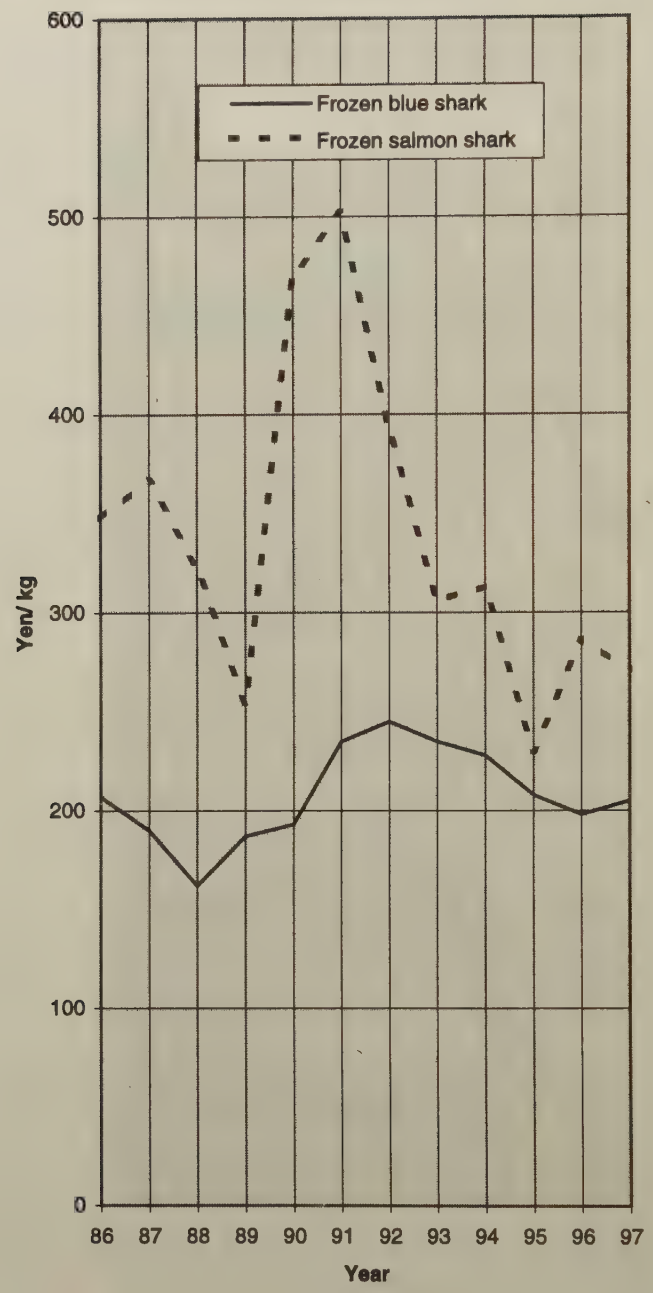

Figure 15. Annual average wholesale prices of frozen sharks, 1986-1997 (yen/kg).
(Source: Tokyo Metropolitan Government 1987-1998)

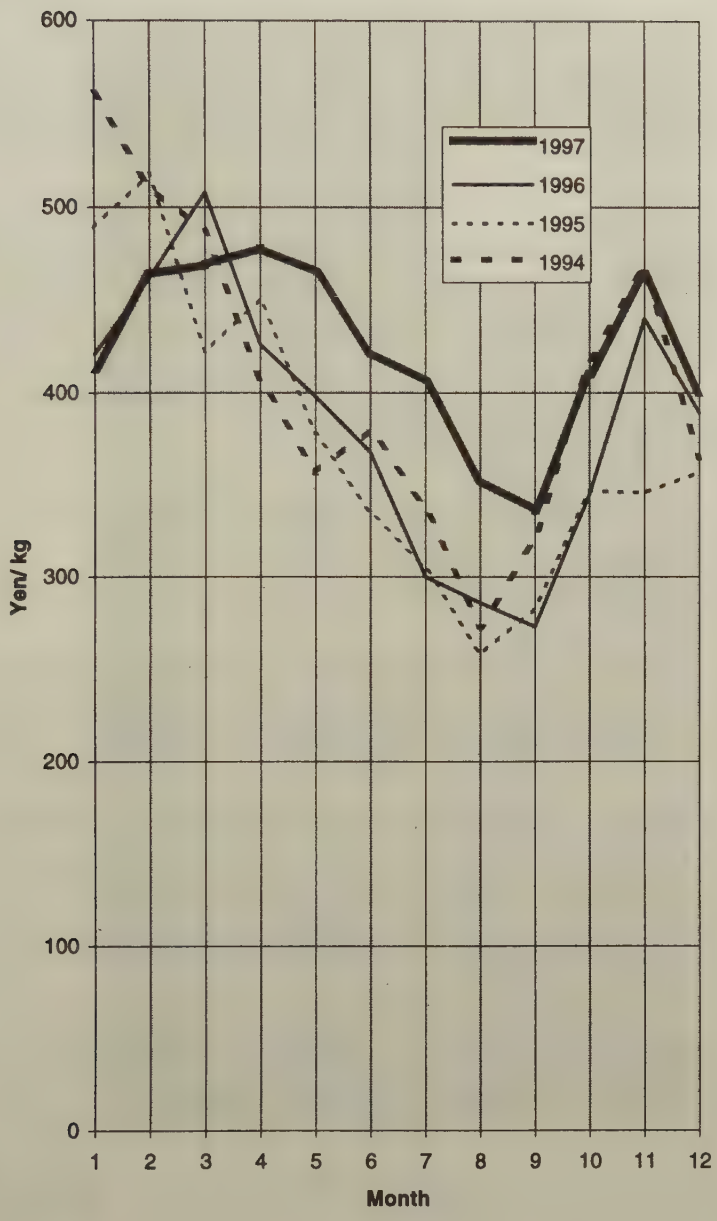

Figure 16. Monthly average wholesale prices of fresh blue shark, 1994-1997 (yen/kg). (Source: Tokyo Metropolitan Government 1995-1998)

REFERENCES

FAO. 1964, 1969, 1974, 1978, 1983, 1984, 1987, 1997. [Annual report series]. FAO yearbook, fishery statistics, catches and landings. Food and Agriculture Organization of the United Nations, Rome.

___. 1997. FAO yearbook, fishery statistics, commodities. Food and Agriculture Organization of the United Nations, Rome.

Japan Marine Products Importers Association. 1977-1998. Japanese imports of marine products (statistics). Tokyo, Japan.

Management and Coordination Agency. 1998. Interbank exchange central monthly exchange rate.

Minato Shinbun Sha. 1998 [Japanese daily fisheries and food news; in Japanese]. Minato. 9 March, 1998. Shimonoseki, Japan. 4 pp.

Ministry of Agriculture, Forestry and Fisheries. 1956-1997 [Annual production of fisheries and culture in Japanese]. Statistics and Information Department. Tokyo, Japan.

Ministry of Agriculture, Forestry and Fisheries. 1993, 1997, 1998, [Annual report series]. Gyogyo Yoshokugyo Suiiki Seisan Tokei [Annual production of fisheries and culture by fishing areas in Japanese]. Statistics and Information Department. Tokyo, Japan.

Ministry of Finance. 1994-1998. Annual trade statistics. Customs and Tariff Bureau. Tokyo, Japan.

Nakano, H. Age, reproduction and migration of blue shark in the North Pacific Ocean (in Japanese). National Research Institute of Far Seas Fisheries. Shimizu, Japan.

Suisan Sha. 1989, 1993, 1995. Suisan nenkan [Annual fishery statistics in Japanese]. Tokyo, Japan.

Suisan Sha. 1963. Katsuo-Maguro. [Tuna and skipjack in Japanese]. Tokyo, Japan. 844 pp.

Taniuchi, T. 1995. Should Sharks be Conserved? (in Japanese). Koseisha Koseikaku. Tokyo, Japan.

Tarumoto, R. 1984. History and status of offshore shark loneline fisheries (in Japanese). Elasmobranch Studies Society of Japan. Tokyo, Japan.

Tokyo Metropolitan Government. 1987-1998 [Annual report series]. Tokyoto Chuo Oroshiuri Ichiba Nenpo [Tokyo central wholesale market, annual report]. Tokyo, Japan.

U.S. Embassy. 1998. Japanese importers of shark products. Commercial Section. Tokyo, Japan.

Yaizu Fisheries Cooperatives. 1964. History of Yaizu fisheries. Shizuoka, Japan. 891 pp.

Appendix 1. Major species of sharks caught by Japanese.

Scientific name	English name
Squalus acanthias	Piked dogfish
Pseudocarcharias kamoharai	Crocodile shark
Lamna ditropis	Salmon shark
Lamna nasus	Porbeagle
Carcharodon carcharias	Great white shark
Isurus oxyrinchus	Shortfin mako
Isurus paucus	Longfin mako
Alopias superciliosus	Bigeye thresher
Alopias vulpinus	Thresher shark
Alopias pelagicus	Pelagic thresher
Galeocerdo cuvier	Tiger shark
Prionace glauca	Blue shark
Carcharhinus brachyurus	Copper shark
Carcharhinus brevipinna	Spinner shark
Carcharhinus falciformis	Silky shark
Carcharhinus galapagensis	Galapagos shark
Carcharhinus limbatus	Blacktip shark
Carcharhinus longimanus	Oceanic whitetip shark
Carcharhinus obscurus	Dusky shark
Carcharhinus plumbeus	Sandbar shark
Sphyrna lewini	Scalloped hammerhead
Sphyrna mokarran	Great hammerhead
Sphyrna zygaena	Smooth hammerhead

Sources: T. Taniuchi 1995
Suisan Sha 1963
Ministry of Agriculture, Forestry & Fisheries, 1969
FAO 1984

Appendix 2. Monthly and annual average exchange rate applied to Japanese imports, 1976-1998 (yen/U.S. $1.00).

Month	1976	1977	1978	1979	1980	1981	1982
Jan.	305.50	292.64	240.73	195.98	237.68	203.99	221.36
Feb.	302.84	288.41	241.46	199.16	240.35	203.44	231.15
Mar.	301.50	282.49	236.94	203.39	247.44	207.80	237.03
Apr.	299.30	275.91	222.99	210.87	252.39	211.99	246.01
May	299.00	277.66	225.36	217.81	238.71	217.18	237.25
June	299.83	275.79	222.54	219.83	221.44	223.89	243.66
July	296.89	267.78	205.17	217.24	217.95	226.55	256.07
Aug.	292.81	265.70	191.18	216.13	224.85	236.35	257.18
Sep.	288.18	267.14	190.94	220.54	219.10	230.26	258.60
Oct.	288.43	261.78	187.76	225.41	210.18	229.15	268.14
Nov.	294.12	249.13	184.41	238.48	211.28	230.56	272.81
Dec.	295.68	241.87	196.54	244.62	212.85	218.15	250.33
Jan.-Dec.	296.92	270.53	212.17	217.46	227.85	219.94	248.30

Month	1983	1984	1985	1986	1987	1988	1989
Jan.	232.89	233.83	252.04	202.07	159.01	126.01	125.64
Feb.	237.03	233.98	256.66	193.53	152.70	128.57	128.49
Mar.	235.99	228.79	260.53	180.21	153.47	128.72	128.00
Apr.	238.61	225.10	254.49	178.62	146.97	125.64	132.12
May	235.43	227.48	251.36	167.08	139.91	124.76	133.78
June	238.48	231.56	250.26	169.29	142.58	125.23	143.06
July	239.93	238.69	246.22	163.17	147.81	131.40	141.60
Aug.	242.70	243.69	237.92	155.04	150.83	133.12	140.29
Sep.	244.80	243.02	239.20	154.66	143.02	134.21	145.10
Oct.	236.15	246.68	221.43	154.23	144.59	132.58	142.58
Nov.	234.22	244.08	209.32	160.34	138.52	125.36	142.67
Dec.	234.81	246.07	202.60	162.73	132.65	122.21	143.83
Jan.-Dec.	237.59	236.91	240.17	170.08	146.01	128.15	137.26

Appendix 2 (continued). Monthly and annual average exchange rate applied to Japanese imports, 1976-1998 (yen/U.S. $1.00).

Month	1990	1991	1992	1993	1994	1995	1996
Jan.	144.36	135.27	126.21	124.66	111.79	100.25	104.49
Feb.	144.93	130.97	125.47	123.98	109.23	99.19	106.38
Mar.	148.61	134.02	130.46	117.95	105.04	94.49	105.32
Apr.	156.99	137.68	133.37	115.05	104.47	86.99	107.07
May	157.09	137.71	132.77	110.81	103.07	83.75	106.02
June	159.28	139.05	128.15	107.97	104.29	84.96	108.19
July	151.95	138.85	125.61	108.16	99.55	85.46	109.55
Aug.	148.90	137.00	126.99	105.38	99.57	90.73	107.84
Sep.	142.96	136.24	124.36	104.37	99.25	98.48	108.78
Oct.	133.82	131.72	121.03	105.79	98.97	100.88	110.99
Nov.	128.31	130.47	122.71	107.80	97.41	101.56	112.86
Dec.	130.86	129.14	124.11	108.35	99.22	101.51	112.70
Jan.-Dec.	145.67	134.84	126.77	111.69	102.66	94.02	108.35

Month	1997	1998
Jan.	115.60	129.45
Feb.	121.26	126.00
Mar.	122.38	128.69
Apr.	124.29	131.67
May	123.99	135.00
June	114.98	140.57
July	114.08	
Aug.	117.18	
Sep.	119.44	
Oct.	121.18	
Nov.	122.27	
Dec.	127.90	
Jan.-Dec.	120.38	

Sources: Japan Marine Products Importers Association 1977-1998
Management and Coordination Agency 1998

Appendix 3. Japanese shark importers

COMPANY: Japan Orchids Fishery Co.,
ADDRESS: Yamaichi Gyogyo Bldg. 3F, 4-9-5 Tsukiji
Chuo-ku, Tokyo 104
PHONE: 03-3545-2696
FAX: 03-3545-1835
PRODUCTS: Shark fins, live American lobster, live spiny lobster, live Dungeness crab, fresh fluke, live/fresh shrimp

COMPANY: Kesennuma Gyogyo Kyodo Kumiai
ADDRESS: 3-3-7 Minamicho Kesenuma, Miyago 988
PHONE: 226-23-3400
FAX: 81-226-23-3406
PRODUCTS: Live, fresh and frozen seafood other than tuna and shark

COMPANY: Kishimoto Co., Ltd.
ADDRESS: Yamaume Bldg. 7F, 2-17 Kanda Sudacho
Chiyoda-ku, Tokyo
PHONE: 03-3255-3689
FAX: 03-3258-4372
PRODUCTS: Dogfish liver, oil

COMPANY: Kishimoto Special Oil Co.
ADDRESS: Artere Akihabara Rm. 1003
1-8-4 Kanda-Sakura Cho, Chiyodaku, Tokyo
PHONE: 03-3253-2883
FAX: 03-3255-2595
PRODUCTS: Shark liver oil

COMPANY: Kowa K.K.
ADDRESS: 3-4-14 Nihonbashi-honcho, Chuo-ku, Tokyo 104
PHONE: 03-3279-7234
FAX: 03-3242-5856
PRODUCTS: Shark cartilage powder

OMPANY: M. Tohyama Co., Ltd.
ADDRESS: 3-5-91 Tohyama, Shichigahamacho
Miyagi-gun, Miyagi 985
PHONE: 22-362-4710
FAX: 22-366-6821
PRODUCTS: Frozen dogfish

COMPANY: Maruha Corporation
ADDRESS: 1-1-2 Otemachi, Chiyoda-ku, Tokyo 100-0004
PHONE: 03-3216-0212
FAX: 03-3216-0316
PRODUCTS: Skipjack, capelin, black cod, bottom fish, butterfish, cod, flounder, hake, herring, horse mackerel, pollack,

COMPANY: Meiwa Trading Co., Ltd.,
Agriculture & Marine Products Department
ADDRESS: 3-3-1 Marunouchi
Chiyoda-ku, Tokyo 100-0005
PHONE: 03-3240-9390
FAX: 03-3240-9560
PRODUCTS: Albacore, croaker, capeline, eel, grouper, hairtail, horse mackerel, salmon, sea bream, skipjack, shark, spanish mackerel, swordfish, tuna, flyingfish eggs, herring roe, salmon roe, shrimp, lobster, crab, cuttlefish, squid, octopus, hard clam, shortneck clam, top shell, jelly fish, sea urchin, shark fin, specialty seafood salmon, snapper, tuna, shrimp, lobster, crab, cuttlefish, squid, octopus, abalone, perna, hake, smoked sockeye, smoked Atlantic salmon, fish feed, dried shark fin

COMPANY: New Nippo Corporation
ADDRESS: Iino Bldg., 2-1-1
Chiyoda-ku, Tokyo 100
PHONE: 03-3506-5365
FAX: 03-3591-3575
PRODUCTS: Shark liver for oil production, all fishery products

COMPANY: Seki Shoji
ADDRESS: 3-22-4 Tomioka Higashi, Kanazawa-ku,
Yokohama, Kanagawa 236
PHONE: 45-771-4239
FAX: 45-771-4239 3-
PRODUCTS: Live glass eel, shark fins, alligator meat

COMPANY: Takaei Trading Co., Ltd.
ADDRESS: 6-17-4 Tsukiji, Chuo-ku, Tokyo 104-0045
PHONE: 03-3542-4791
FAX: 03-3542-4794
PRODUCTS: Marlin, shark, skipjack, swordfish, tuna

COMPANY: Tokyo Commercial Co., Ltd
ADDRESS: 8-15 Toyomicho, Chuo-ku, Tokyo 104-0055
PHONE: 03-3534-1301
FAX: 03-3532-9420
PRODUCTS: Black cod, blue fish, flounder, marlin, mackerel, ocean perch, red snapper, sea bream, shark, sole, tuna, lobster, crab, cuttlefish, mongo-ika, squid, abalone, octopus, blowfish, butterfish, shrimp, tilefish

COMPANY: Total Kikaku J
ADDRESS: 1-18-13 Hamamatsucho, Minato-ku, Tokyo 105
PHONE: 03-5473-1471
FAX: 03-5473-1472
PRODUCTS: Shark cartilage powder

COMPANY: Toyo Menka Kaisha, Ltd.
ADDRESS: Kokusai Shin Akasaka Bldg. West, 5F, 6-1-20 Akasaka Minato-ku, Tokyo 107
PHONE: 03-3588-6904
FAX: 03-3588-9972
PRODUCTS: Shark fins

COMPANY: Watarai Co., Ltd.
ADDRESS: 1-7-10 Shinhama-Cho, Shiogama City, Miyag, 985
PHONE: 81-22-362-0656
FAX: 81-22-265-5799
PRODUCTS: Frozen Greenland Turbot, Frozen Plaice, Frozen Sole, Frozen Other Flatfish, Frozen Pacific Cod, Frozen Rockfish And Black Cod, Frozen Bottom Fish, frozen dogfish

COMPANY: Yamaoka Co., Ltd.
ADDRESS: 2-2-55 Nishinagasucho
PHONE: 6-401-0511
FAX: 6-489-4738
PRODUCTS: Halibut cheak meat, dover sole, alligator meat, alligator arms, American lobster, spiny lobster, shark fin

COMPANY: Yamatoku Hiratsuka Fishery Processor Company
ADDRESS: 2-8-9 Sakanamachi, Ishinomaki, Miyagi 986
PHONE: 225-22-0171
FAX: 225-95-6882
PRODUCTS: Frozen dogfish, surimi products

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The U.S. Embassy Tokyo, USFCS Tokyo and the National Marine Fisheries Service cannot be responsible for the accuracy of this information nor do they endorse any companies listed herein.
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Source: U.S. Embassy, Commercial Section, Tokyo, Japan 1998